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This collection of student monographs includes: "Educating Older Adults About Medications" (Patricia Barrett-Schwer); "Health Educators' Role in Weight Management and Body Acceptance" (Melanie H. Brede); "Health Educators as Advocates for Organ Donation" (Jennifer L. Hawker); "Involvement of Illinois School Nurses in the Eight Component Model of Coordinated School Health Programs" (Elissa M. Howard); "Evaluation of Environmental Approaches to Control for Indoor Allergens and Reducing Asthma Morbidity among Children and Adolescents" (E. Lisako Jones and Christine A. Tisone); "Doula Use During Childbirth" (Tia Reed); "Prescription Drug Misuse in Older Adults and Strategies for Prevention" (Jessica A. Schulman); "The Role of Pharmacists in Reducing Tobacco and Alcohol Use" (Stefanie Stephenson); "Understanding Childhood Obesity" (Shannon Tynes); and "Consumer Health Information and the New Technologies: Implications for Health Education" (Marsha H. White). (All papers contain references.) (SM)

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2000

The Health Education Monograph

Series

THE STUDENT ISSUE

ORIGINAL ARTICLES BY STUDENT GAMMANS 2000 EDITION

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BY
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Foreward

I am delighted to present the 2000 edition of the Student Monograph. Working with young scholars from across the country has been a wonderful experience. It is not often one gets the chance to see the future of your profession so closely. If past issues of the **Student Monograph** are any indicator, many of the authors in this year's monograph will be the researchers of our future.

I wish to express my admiration to all the students who submitted manuscripts for publication in the **2000 Eta Sigma Gamma Student Monograph**. Your efforts are an important part of your professional growth. To those students whose work was not accepted for publication, do not become discouraged. Refereed journals do not accept all of the manuscripts submitted. Your willingness to submit work to the Student Monograph will pay dividends to you in the future. Congratulations to the student Gammans whose work was chosen to be published.

I would like to acknowledge the efforts of the faculty sponsors and editorial reviewers. Their guidance has been invaluable to the students and to the **Monograph**. The advice and support of the faculty sponsor is important to help the student author through the process of writing, revising, and submitting manuscripts. I would also like to express my appreciation to the reviewers for taking time from your busy schedules to critique the papers. Your written comments were helpful in polishing the manuscripts for this publication.

In addition, I wish to thank the administration and staff of the Department of Physiology and Health Science at Ball State University for providing me with the support necessary to complete the many tasks associated with publishing the Monograph. I also wish to thank Professor Mohammad R. Torabi for the opportunity to be a part of the **2000 Student Monograph.**

Again, a hardy pat on the pack to the student authors. In the future I look forward to reading many excellent articles written by you.

Jeffrey K. Clark, H.S.D.
Guest Editor
2000 Eta Sigma Gamma Student Monograph

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Preface

On behalf of your National Executive Committee of **Eta Sigma Gamma (ESG)**, I would like to offer my sincere congratulations to all of the students who submitted research papers for publication consideration in this student issue of ***The Health Education Monograph Series***. This is a strong indication of our students' commitment to research. I would like to extend my genuine appreciation to Dr. Jeffrey Clark for the excellent job he has done as our Guest Editor for this issue. Further, I wish to thank all faculty advisors who encouraged and worked with the students in the manuscript preparation. My sincere appreciation and gratitude are extended to Kathy Finley for her assistance in preparing the final publication, and Joyce Arthur for her technical assistance. A special thanks is also extended to Mr. Jay Javed, Executive Director of **ESG** for his general assistance. Certainly, I must thank the Department of Applied Health Science of Indiana University for the in-kind support provided for the publication of the **Monograph Series**.

I would like to invite all faculty to encourage students to submit research papers for the next student issue of ***The Health Education Monograph Series***. The deadline for submission is January 10, 2001. Our guest editor for the next student issue is Dr. Akbar Davami, MSPH, CHES, Associate Professor of Health & Safety Studies at California State University, Sacramento, 6000 J Street, Sacramento, CA 95819-6073. Phone number (916)278-5689, fax number (916)278-7421.

Finally, I would like to thank you for sharing your comments with me regarding the past **Monograph Series**. As always, I am eager to hear your criticism, comments, and suggestions relative to this publication. I do hope that you, as loyal members of this National Honorary, check your college/university libraries and make sure that they receive ***The Health Education Monograph Series***. If not, please request that they subscribe to these important publications. It is a privilege for me to serve **ESG** members and our profession.

I look forward to hearing from you.

Mohammad R. Torabi, PhD, MPH CHES
Editor, ***The Health Education Monograph Series***
Indiana University

9/15/00

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Educating Older Adults About Medications

Patricia Barrett-Schwer

Abstract

Older adults taking multiple medications for chronic health problems are dangerously unknowledgeable about their medications and pose a modern health education professional challenge. Increased medication use by older adults could bring increased risk for the estimated nine million adverse drug reactions occurring in the elderly each year (Kahle, Blandford, Krueger, & Zwick, 1992). Dedicated and comprehensive education on facts such as medication names, use, and awareness of potentially dangerous drug side effects is needed. While physicians and pharmacists are currently excellent sources of drug information, most have neither the time, training, nor setting required for comprehensive education. Health educators possess that education and training, and with a few additional classes (e.g. pharmacology, medical terminology, or patient education) could answer the challenge. Working in partnership with physicians, whether in private practice or HMOs, one-on-one counseling or with groups, health educators can provide cost effective medication education.

Introduction

Statistics on the growth of the elderly population, combined with the ever increasing numbers of medications that they are taking, are reasons for concern. The United States Administration on Aging (AOA) recently reported that the 65-year and older segment of the U.S. population numbered 34.4 million in 1998, or about 12.7% of the population. By the year 2030, that number could more than double to approximately 70 million (AOA, 1999). The advancing age of the population brings chronic health problems that increase the potential for daily medications, reactions from their side effects, and consequently the need for even more medication. Estimates of the number of prescriptions taken by older adults with chronic health problems can range as high as 15 to 31 per year (Kahle, Blandford, Krueger, & Zwick, 1992).

Problem

Although medications can be life saving, they can also have potentially serious consequences, particularly when patients are uninformed or inadequately informed about their own unique combination of medications (Rochon & Gurwitz, 1999). The possible chemical reactions from taking those medications caused one pharmacology instructor to refer to medications as poisons with side effects (J. Chambers, personal communication, February, 1997). He based the statement on the fact that each drug introduced into the body produces one or more therapeutic effects, and one or more potentially toxic side effects (Smith & Reynard, 1995). Physicians normally choose a drug for its most prominent effect in order to provide relief from or cure a health problem. The remaining effects, or side effects, cannot be ignored. They must be dealt with either by countering the side effect with another drug or by changing the prescription in favor of another from the same category (Smith & Reynard, 1995).

Adverse drug reactions are the development of severe undesired side effects, or toxicity, caused by the administration of drugs (Thomas, 1993). Although it is the goal of pharmacology to discover effective drugs without adverse effects, it is a fact that all drugs have undesired effects at some dose (Smith & Reynard, 1995). In aging bodies, most drug effects are magnified, in part because decreased organ function causes slower elimination of drugs. The decreased drug elimination provides the potential for adverse drug effects or possibly even death (Smith & Reynard, 1995). This is illustrated by the estimated nine million adverse drug reactions in the elderly population each year. More than 200,000 of these require hospitalization (Kahle, Blandford, Krueger, & Zwick, 1992).

Financial concerns are at issue as well. The United States Food and Drug Administration (FDA) reported that incorrect medication use caused the loss of approximately $76.6 billion annually from increased doctor visits, hospital stays, lost wages, and changed prescriptions (FDA, 1999). Many of those drug errors and financial losses are predictable and therefore avoidable through education (Cunningham, 1997).

Medication education for older adults is not a problem limited to the United States. One British research study of elderly patients 75 years and older taking multiple medications demonstrated that 64% of the subjects could identify the correct trade name of their medications, 72% knew the correct dosage to take, and 72% could give the correct dose schedule from memory (Blenkiron, 1996). Although these percentages may sound encouraging to some, it remains a consideration that 36% of the elderly would not be able to give a physician medication names in the event of a medical emergency.

Literacy also has a significant influence on older patients' drug education needs. Approximately one third of the older adults are functionally illiterate. That third are also more likely to live in poverty, be less educated, and be taking multiple medications for chronic health problems (Davis, Meldrum, Tippy, Weiss, & Williams, 1996). Many elderly lack the ability to read important printed drug warnings on prescription bottles. Assessment of reading disability requires individualized assessment as to learning needs, reading levels, and learning styles. Medication teaching guided by educational theory can provide process assessment, a basis for replication of successful interventions, and a framework for planning interventions (Doak, Doak, & Root, 1996).

Medication Education as a Solution

Medication education can have a significant effect on medication compliance. O'Connell and Johnson (1992) surveyed 44 ambulatory patients assessing knowledge about their medications, and their self-estimated compliance levels. Purpose for taking the drug was recalled by 64% and only 27% were aware of possible side effects. These findings were consistent with similar research on medication education.

The effectiveness of medication education for older patients has been established in several research studies. Hayes (1998) conducted a study using drug education strategies tailored to the elderly. The study compared the knowledge of 60 patients, 65 and older, after an emergency room visit. Those subjects who were given medication education tailored to older adults demonstrated significantly improved medication knowledge scores after the educational interventions.

Ryan (1998) found that by individualizing medical education programs patient knowledge can be increased. A group of 15 older patients were surveyed to assess medication knowledge before and after a two week individualized education program. Each patient was interviewed to create an individual program of a combination of written and verbal instruction. The average increase in knowledge was 26%, with high levels of patient satisfaction.

Present Sources of Medication Education

While physicians have traditionally been responsible for patient education and are an excellent source of information (Kessler, 1991), many patients visit multiple specialty physicians. Educational efforts should then be directed at, and uniquely tailored to individual patients rather than to a single condition. Today, physicians rarely have time for in depth counseling because of their heavy patient loads (Weiderholt, Clarridge, & Svarstad,1992). Even those physicians who do an excellent job of educating, and spend a significant amount of time, must find it frustrating that patients often formulate their questions after the visit is over. The result is that questions may go unanswered, and patients may make medication decisions on their own without adequate knowledge (Tang, Newcomb, Gorden, & Kreider, 1997).

Pharmacists are another important source of medication information. Information giving, however, is not synonymous with education since it does not include the planned interventions of an educational program. As with physicians, there are pharmacists who do an excellent job, but there are those who spend limited time with their customers and fail to give them basic information (Wiederholt et al., 1992).

Health educators have increased training and responsibilities such as the undertaking of a comprehensive assessment of the learner's needs, planning effective educational interventions, and assessing the process and outcomes (Cottrell, Girvan, & McKenzie, 1999). This is a step beyond providing relevant and understandable information. Their training includes familiarity with various health education and behavioral theories.

Implications for Health Education

The need for comprehensive medication education has not been met by either the physicians or the pharmacists. Physicians' limited time for education results in neither comprehensive, planned, nor cost effective education. Pharmacists experience similar limitations, but also often have inadequate educational setting to adequately educate their customers. It is also probable that neither physicians nor pharmacists have the unique and total picture of the patient's educational needs because of patients' use of multiple physicians and/or pharmacies (Monane, Monane, & Semla, 1997).

Health educators are uniquely qualified to provide cost-effective medication education for older adults. Competent health educators are prepared to assess needs, as well as to plan, implement, and evaluate educational programs that can protect and improve individual or group medication behavior. These characteristics can benefit older adults by increasing prescription drug knowledge, and decreasing medication errors.

Educating patients about their prescription use is an area that has only recently begun to be studied. Future identification of both medication knowledge and individual patient needs will be required (Schuster, 1995). To individualize and carry out medication education, one-on-one medicine counseling can occur during a home visit, a physician visit or at a health maintenance organization (HMO). Older patients could be assisted with preparation of a list of their physicians and medications and allergies (FDA, 1999). Small groups, or seminars could be arranged in retirement centers. In many instances, simply clarifying a medication misunderstanding is sufficient to prevent a medication error (Kessler, 1991).

Conclusion

Health educators in partnership with patients, physicians,

and pharmacists can make significant improvements in medication behaviors to reduce medication errors. Questions previously thought to be too unimportant to bother a physician with can be explored and answered.

In preparation for this challenge, health education students should consider the addition of a few elective classes (e.g., pharmacology, patient education, or medical terminology) to keep abreast of today's health education needs. Internships or practicum could then be sought in a patient education setting. Health educators have made remarkable strides in the prevention of disease and disability in many areas (e.g., alcohol, tobacco, nutrition, etc). Health education can play a significant role in preventing problems associated with older adults, as well as maximizing their medications practices.

References

Blenkiron, P. (1996). The elderly and their medication: Understanding and compliance in a family practice. *Postgraduate Medical Journal, 72*, 671-676.

Cottrell, R., Girvan, J., & McKenzie, J. (1999). *Principles and foundations of health promotion and education.* Boston: Allyn and Bacon.

Cunningham, G. (1997). Adverse drug reactions in the elderly and their prevention. *Scottish Medical Journal, 42*, 136-137.

Davis, T., Meldrum, Tippy, P., Weiss, B., & Williams, M. (1996). Health literacy: How poor literacy leads to poor health care. *Patient Care* (October 15, 1996) 94-127. [Online]. Available: http://pc.pdr.net/pc/.

Doak, C., Doak, L., & Root, J. (1996). *Teaching patients with low literacy skills* (2nd ed.). Philadelphia: J.B. Lippincott Co.

Food and Drug Administration (1999). *My medicines* [Brochure]. Washington, DC: Author.

Hayes, K. (1998). Randomized trial of geragogy-based medication instruction in the emergency department. *Nursing Research, 47*, 211-217.

Kahle, A., Blandford, D., Krueger, K., & Zwick, D. (1992). Geriatric education centers address medication issues affecting older adults. *Public Health Reports, 107* (1), 37-46.

Kessler, D. (1991). Sounding board: Communicating with patients about their medications. *New England Journal of Medicine, 325*, 1650-1652.

Monane, M., Monane, S., & Semla, T. (1997). Optimal medication use in elders: Key to successful aging. In: Successful aging. *Western Journal of Medicine, 167*, 233-237.

O'Connell, M., & Johnson, J. (1992). Evaluation of education knowledge in elderly patients. *Annals of Pharmacotherapy, 26*, 919-921.

Ryan, A. (1998). A systematic approach to self-medication in older people. *British Journal of Nursing, 7*, 528-535.

Rochon, P., & Gurwitz, J. (1999). Prescribing for seniors: Neither too much nor too little. *Journal of the American Medical Association, 282*, 113.

Schuster, C. (1995). Have we forgotten the older adults? An argument in support of more health promotion programs for and research directed toward people 65 years and older. *Journal of Health Education, 26*, 338-344.

Smith, C., & Reynard, A. (1995). *Essentials of pharmacology.* Philadelphia: W.B. Saunders Company.

Tang, P., Newcomb, C., Gorden, S., & Kreider, N. (1997). Meeting the information needs of patients: Results from a patient focus group. *Proceedings of American Medical Informatics Association Annual Fall Symposium,* (pp. 672-676). AMIA.

Thomas, C., (Ed.). (1993). *Taber's Cyclopedic Medical Dictionary* (17th ed.). Philadelphia: F.A. Davis Company.

U.S. Administration on Aging. (1999). *A profile of older Americans 1999.* Washington, DC (Author): U.S. Government Printing Office. [Online]. Available: http://www.aoa.gov/aoa/stats/profile.

Wiederholt, J., Clarridge, B., & Svarstad, B. (1992). Verbal consultation regarding prescription drugs: Findings from a statewide study. *Medical Care, 30*, 159-172.

Health Educators' Role in Weight Management and Body Acceptance

Melanie H. Brede

Abstract

In a society obsessed with appearance, Americans struggle with weight management and body dissatisfaction. Unhealthy dieting practices and unrealistic appearance expectations are damaging to physical and psychological health. Instead of demanding weight loss, many health professionals are now calling for weight maintenance and body-acceptance. From a critical review of the weight management and body image literature, suggested roles for health educators in weight management and body-acceptance are described. It is the responsibility of health educators to educate the public about realistic body weight, help individuals set achievable goals, enhance social support, educate other healthcare professionals, model body acceptance, and plan and implement effective health education programs.

Introduction

America is a society obsessed with appearance. The images we see on television, in magazines, and in movies portray an ideal simply unobtainable by the majority of the population. Yet, many try relentlessly to obtain a the look through fad diets and dietary supplements, often at the expense of physical and psychological health. This paper discusses weight management and body image problems faced by Americans, presents issues involved in resolving these problems, and suggest roles health educators may take in combating these problems.

The Problem of Overweight

The United State faces an obesity crisis of epidemic proportions. In the 1980's, the prevalence of obesity increased 40%. Currently, more than one third of the American adults are obese. Obesity has been linked to many comorbid conditions, including cardiovascular diseases, Type 2 diabetes, impaired glucose tolerance, hyperinsulinemia, dyslipidemia, hypertension, sleep apnea, gallbladder disease, osteoarthritis of weight-bearing joints, reduced fertility, and some cancers (Rippe, 1998). Over consumption of energy and inadequate levels of physical activity, two behaviors commonly associated with obesity, contributed to 300,000 avoidable deaths per year, making this combination of lifestyle factors the second leading cause of preventable death in America. Obesity accounts for more than $68 billion in health care costs and 6% of the nation's total health budget (Rippe, 1998).

Physical and monetary costs are not the only expenses exacted by obesity. The social and psychological burdens carried by obese people are tremendous. In our society, thinness is the ideal. Television, magazines, and even cereal boxes depict thin people as happy people. Thin people are perceived as beautiful, successful, powerful, and moral, while obese people are perceived as ugly, lazy, stupid, and cheats by children as young as six years old (Ciliska, 1990). The discrimination that results from these perceptions is pervasive in our society. In one study, mental health workers were asked to assess a patient given the patient's case history and a photo. The case histories given were the same in each case, but the photo varied between a best-weight, overweight, and obese woman. Workers assigned more negative psychological symptoms to the obese woman than the other women (Ciliska, 1990).

In general population studies, the obese show no greater psychopathology than the non-obese. They do, however, demonstrate greater disparagement related to their own bodies (Ciliska, 1990). In comparison to normal weight individuals, obese people, especially women, have more negative body images (Parham, 1999). They overestimate or distort their body size more, are more dissatisfied and preoccupied with their physical appearance, and avoid more social situations due to their appearance (Rosen, Orosan, & Reiter, 1995). Body image is closely related to self-esteem, and body dissatisfaction is related to body image disturbance, which is one aspect of eating disorders (Parham, 1999).

Given the enormous physical, nonetary, social, and psychological costs of obesity, finding an effective treatment for this epidemic is paramount. Dieting is by far the most commonly attempted method of weight loss. Diets alone, however, do not work. Dieting results in a decreased me tabolism, according to some researchers (Ciliska, 1990). As a consequence of a decreased metabolism, the number of calories required just for weight maintenance drops. When the diet is terminated, the return to a normal level of food intake promotes rapid weight gain. With repeated dieting, the metabolism drops further, exacerbating weight gain (Ciliska, 1990).

Another theory that explains the body's maintenance of weight despite variations in caloric intake is the set-point theory, which states that the body resists displacement from

a set body weight set-point by adjusting the rate of energy expenditure (Ciliska, 1990). On-again off-again dieting, or weight cycling, has been linked to risk for coronary heart disease and all-cause mortality (Brownell, 1991). The restrictive nature of diets can lead to feelings of deprivation, which can lead to overwhelming hunger and overeating. After numerous failed attempts to lose weight, people often become discouraged and depressed. Dieting has not helped them physically, and they feel worse psychologically (Ciliska, 1990). Still, in pursuit of thinness, people then turn to other methods of weight loss, including herbs, pills, creams, medications, hypnosis, and even surgery. These methods have no guarantee, are expensive, and are often unsafe. For example, in 1997, the FDA asked for a recall of the diet drugs phentermine, fenfluramine, and dexfenfluramine due to their association with heart valve injuries (Fernandez & Saunders, 1999). If these methods fail to achieve weight loss, but instead are physically and psychologically harmful, why pursue weight loss anyway?

Body Image Therapy and Size Acceptance in Weight Management

Body Image Therapy

Most obese persons cite wanting to improve physical self-image as their primary reason for attempting weight loss (Rosen, 1995). However, as described in retrospective studies by Cash, Counts, and Huffine (1990) (as cited by Rosen, 1995), losing weight does not guarantee a normal body image. This is because most weight control programs have not targeted body image (Rosen, 1995). Also, the rebound weight gain typical after a weight control program fails is detrimental, adding to appearance dissatisfaction. Many psychologists have joined an anti-diet, anti-weight reduction movement due to their concern about the poor outcome in most obesity treatments. However, they stress that merely giving up dieting does not lead to improved body image. Rather, techniques such as cognitive behavioral body image therapy should be employed (Rosen, 1995). This therapy can result in significant improvement in body image, independent of weight change.

Cognitive behavioral body image therapy employs a variety of techniques (Thompson, 1990). In *image confrontation*, patients estimate their body size, then they are shown comparisons of their actual size and their estimates. This technique is useful in correcting size perception distortion. Traditional cognitive therapy targets negative self-statements. A counselor demonstrates how to change negative beliefs about appearance into positive ones. When the client successfully substitutes a positive for a negative thought, the counselor praises the client, providing reinforcement. Behavioral procedures are another major component of treatment. *Stress-inoculation training*, in which clients imagine encountering situations that evoke negative thoughts and feelings about their bodies, is one such procedure. This approach may be followed by *in vivo* exposure to problematic situations, which requires clients to actually confront the stimulus elements that cause discomfort. Another useful treatment for body image disturbance trains the client to recognize the discrepancy between perceived and ideal self (Thompson, 1990).

Body Image Disturbance

The discrepancy between perceived and ideal self rests at the root of body image disturbance. According to Brownell (1991), two faulty assumptions commonly are associated with body weight and shape: (a) the body is infinitely malleable, so that with the right diet and exercise, everyone can reach the ideal, and (b) vast rewards await the person who attains the ideal. Attaining the ideal is simply not possible for most people. Much of body shape and size is genetically determined. In a 1990 study by Stunkard et al. (as cited in Rosen, 1995) of twins reared apart, correlations between weights were .70 for men and .66 for women. The same year, Bouchard et al. (as cited in Brownell, 1991) reported results from a study in which identical twins were overfed to examine genetic contributions to increased weight and alterations in body fat distribution. Six times more variability between twin pairs than within pairs was found, arguing for significant genetic influences on weight and body fat distribution (Brownell, 1991). The ideal body seen in actresses, models, and elite distance runners is one with only 10-15% body fat. Normal body fat for a healthy woman is 22-26%. "Not only are these ideal women genetically unique, they also exercise religiously. Miss America contestants average 14 hours per week of exercise, and some do as much as 35 hours! This rate far exceeds the amount of exercise needed to pursue healthy living (Brownell, 1991).

The reward for being attractive is far from instant happiness. Studies show no link between actual physical attractiveness and body image satisfaction. Overall, attractive people have lower college admission rates, lower IQ's, more difficulty sustaining close relationships, and feel less satisfied with life as they age and beauty fades (Brownell, 1991). For many people, the ideal body represented on television shows and magazine covers is not the only unrealistic standard for measuring obesity. Charts such as the popular 1983 Metropolitan Height and Weight Tables define an ideal body weight that many obese patients have never achieved. Clinicians are beginning to revamp their definitions of healthy weight. Their criteria for successful weight management are now based more on improved physical health. A small amount of weight loss may prove very effective in reducing health risk. Weight loss of between 5% and 10% can improve glycemic control in patients with type 2 diabetes. It also can improve insulin sensitivity, reduce blood pressure, decrease plasma lipid levels, and reduce other risk factors in obese patients. In addition, slow, modest weight loss offers

the patient time to make behavioral changes, including building tolerance for lapses (Nonas, 1998).

Issues in Body Acceptance

Patients eager to lose weight at the beginning of treatment may not recognize the value of gradual weight loss. They may strive to lose too much weight too fast. Once they lose some weight and begin to feel physically and psychologically better, they may be more willing to accept modest weight loss goals (Nonas, 1998). Fear of failure is also common at the beginning of a treatment program.

Many fears concerning body acceptance have surfaced not only among patients, but health professionals as well. Traditionally, the desire to be thin has been used by clinicians as a motivating factor. Some say size acceptance represents rejection of the goals of health. However, as stated previously, even modest weight loss produces health benefits. It should be emphasized that not everyone who is overweight [IBW > 110 (IBW = 100 lbs. for first 5= ht + 5lbs/inch over 5= +/- 10% for frame size for women; IBW = 106 for first 5= + 6 lbs/inch over 5= for men +/- 10% for frame size)] (Hopkins, 1993) is in poor health.

Another concern about body size acceptance is that acceptance will encourage weight gain (Parham, 1999). Being unable to control eating as a result of improved body acceptance, a concern expressed by body image disturbance patients, has proven untrue. Rosen (1995) found that cognitive behavior therapy for negative body image significantly improved participants' body image, psychological symptoms, self-esteem, overeating, and eating guilt.

Some argue that size acceptance equals giving up, or accepting something that is not positive. Self-acceptance is not passive resignation to an unhappy fate. Rather, it is an active process of self-affirmation. A parallel can be drawn to aging. While few embrace the aging process with a positive attitude, most people eventually accept it and aim to grow old gracefully (Parham, 1999). Self-acceptance allows for other health-relevant changes as individuals redirect energy sapped from obsessing about weight to other more productive behaviors.

Implications for Health Education

What role can health educators play in this battle between weight management and body acceptance? Before any steps can be taken, health educators must understand the ramifications of the problem. Obesity [>120% IBW] (Hopkins, 1993) poses substantial health risks, as mentioned above. However, awareness of these risks does not always lead to improved behavior (Parham, 1999). Instead of raising a healthy concern about disease, society has developed a debilitating fear of fat. Even children are fat phobic. Some studies indicate 80% of girls already have dieted by age 10. Likewise, between elementary and high school, the percentage of girls in the U.S. who are happy the way I am drops from 60% to 29% (Peacock, 1999).

Health educators' ultimate goal in the battles against obesity and body image disturbance should be to help people strike a balance between striving for weight loss and weight obsession. To accomplish this goal, the public needs to be educated about realistic, achievable body weight (Brownell, 1991). This process involves debunking the myth that attractiveness requires thinness. Answers to the following questions provide a framework for setting objectives: (a) What mass media factors exert the greatest influence on our beliefs? (b) How can we teach people to disregard irrational expectations fostered by sociocultural factors? and (c) How can we intervene to change the association between thinness and acceptability portrayed in mass media (Thompson, 1990). Health educators can fulfill their responsibilities to plan and implement effective health education programs (Cottrell, Girvan, and McKenzie, 1999) by themselves using the media to promote positive messages about body image.

In addition to public promotion of realistic body weight, much work needs to be done at the individual level. In worksite wellness, for example, health educators often have the opportunity to work with individuals in developing a fitness program. In developing such programs, issues to consider include the individual's goal weight, the reason for that goal weight, and expectations related to achieving that goal weight (Brownell, 1991). Health educators should remind clients that reasonable goals for weight and shape vary greatly between individuals. Health educators can draw upon their own expertise by applying behavior change theories/models to help clients explore both the positive and negative effects of attempting changes.

Educational efforts should also target the families and friends of individuals struggling with body image disturbance. These people provide the social support network, and without their support, it is unlikely that body acceptance will last. Support groups and weight acceptance publications and programs also can be helpful (Parham, 1999).

Health educators and other healthcare professionals, including physicians, psychologists, dietitians, counselors, and case managers, all play a role in solving weight management and body image problems. Health educators can promote teamwork among their colleagues by educating them on these issues. In this way, health educators fulfill their responsibility to communicate health education needs, concerns, and resources (Cottrell et al., 1999). At conferences of professional organizations, health educators can present lectures, papers, and poster sessions on setting realistic weight goals and body self-acceptance. Professionals attending such conferences can receive continuing education credits.

To promote body image satisfaction, health educators must model body size acceptance. Through vicarious learning—a basic component of Bandura's (as cited in Parham, 1999)

Social Cognitive Theory—people learn and change attitudes and behaviors as they imitate others. Modeling body size acceptance first requires addressing one's own attitudes toward body weight. Then, size acceptance can be modeled by creating size-friendly office space, decorating with pictures of beautiful people of all colors and shapes, and using educational materials that focus on health rather than weight (Parham, 1999).

As with most health issues, prevention is a primary focus. Interventions with adolescents and teenagers should address risk factors for eating and body image disorders. Vojtecky (1985) reported that self-image (of which body image is a factor) has been shown to influence mental health processes such as decision-making and social interaction. He suggested that childhood educators and parents focus on positive development of these factors during the formative years of the child. Due to a negative correlation between body image and anxiety, Vojtecky (1985) also suggested that stress management education programs address body image. Addressing body image may increase the success of such programs.

Conclusion

It will take a strong, concerted effort to solve the weight management and body image issues Americans face. Prescribing weight loss, a seemingly obvious solution to the problem of obesity, has not proven effective. Obesity continues to increase. Emphasizing health risks associated with obesity only makes people fearful. Idealizing thinness has not motivated healthy goals, but has increased appearance obsession and body dissatisfaction.

To promote weight management and healthy body image, health educators must keep in mind all of the dimensions of wellness. The spiritual, emotional, psychological, social, and environmental dimensions should not be overshadowed by physical health. Focusing on these areas may provide the key to keeping weight management goals in perspective. In the psychological dimension, for example, by enhancing global self-image, body image may improve. Using the methods described above—educating the public about realistic body weight, setting achievable goals with individuals, enhancing social support, educating other healthcare professionals, modeling body acceptance, and incorporating stress management into programs—we can more effectively address weight management and body image problems.

References

Brownell, K. D. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. *Behavioral Therapy, 22,* 1-12.

Ciliska, D. (1990). *Beyond dieting: Psychoeducational interventions for chronically obese women: a non-dieting approach.* New York: Brunner/Mazel.

Cottrell, R. R., Girvan, J. T., & McKenzie, J. F. (1999). *Health promotion and education.* Boston: Allyn and Bacon.

Fernandez, X. J., & Saunders, J. H. (1999). *Public health emergency declared by governmental agencies* [Online]. Available: http://www.fen-phen-injury.com/public.html.

Hopkins, B. (1993). Assessment of nutritional states. In *Nutrition Support Dietetics Core Curriculum.* Silver Spring, MD: Aspen.

Nonas, C. A. (1998). A model for chronic care of obesity through dietary treatment. *Journal of the American Dietetic Association, 98,* (Suppl. 2), 16-22.

Parham, E. S. (1999). Promoting body size acceptance in weight management counseling. *Journal of the American Dietetic Association, 99,* 920-925.

Rippe, J. M. (1998). The obesity epidemic: Challenges and opportunities. *Journal of the American Dietetic Association, 98,* (Suppl. 2), 5.

Rosen, J. C., Orosan P., & Reiter, J. (1995). Cognitive behavior therapy for negative body image in women. *Behavioral Therapy, 26,* 25-42.

Thompson, J. K. (1990). *Body image disturbance.* New York: Pergamon Press.

Vojtecky, M. A. (1985). *Correlational investigation of body image, locus of control, and anxiety with implications for health education.* Unpublished master's thesis, Pennsylvania State University, College Park, Pennsylvania.

Health Educators As Advocates For Organ Donation

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Abstract

The goal of this article was to explore how health educators are in the unique position to use their training to advocate for organ donation in their communities before the need arises. To increase their effectiveness, health educators should become knowledgeable of the history of transplants, transplant procedures, basic terminology, types of transplants, and especially how attitudes regarding organ donation affect people's willingness to donate their organs. A brief review of literature is presented to demonstrate how health educators can assist in each of these areas. Implications for health educators regarding organ donation may be best viewed from the perspective of the responsibilities of entry-level health educators. The key responsibilities for organ donation advocacy would be planning and implementing health education programs, as well as acting as a resource person in the community.

Introduction

Only 50,000 of the approximately 2.2 million deaths in the United States each year result in organ donation (Smith, 1990). Many of these deaths could have helped to reduce the shortage of organs and saved lives had the people only been organ donors. Each donor has the potential to save five lives through donating their organs (Norris & House, 1991). Doctors, nurses, psychologists, and social workers all serve on transplant teams around the country, but they do generally not become involved until after the need arises. They become involved either when their patient is placed on the transplant waiting list, or when it is time to ask the next of kin for permission to donate the organs of a family member who has been declared brain dead.

Health educators are in the unique position to use their training to advocate for organ donation in their communities before the need arises. To increase their effectiveness, health educators should become knowledgeable of the history of transplants, transplant procedures, basic terminology, types of transplants, and especially how attitudes regarding organ donation affect people's willingness to donate their organs.

History of Organ Transplants and Donation

The idea of transplants has been around for years. The first transplants were not of organs, but rather tissues and bones. Dr. Meekren was recorded in 1682 to have transplanted a piece of a dog's skull to correct a defect in the skull of a solider (Norris & House, 1991). Skin transplants were the next type of transplant attempted and were recorded just after the Civil War. During the 1950's more doctors began to perform human organ transplants. However, it was not until 1980 the development of cyclosporine, an immunosuppressant drug that transplants became more successful (Lamb, 1990). Cyclosporine helped to reduce the body's risk of rejection (Lamb, 1990).

Transplant Procedures

The organ transplant procedure begins with the need of a patient whose own organ has failed or will no longer provide its necessary function. The doctor will then refer the patient to the nearest transplant center where they will be assessed by a transplant team. The team usually consists of both medical and psychological personnel. The patient is evaluated medically and psychologically to assess a probable success rate (Craven & Rodin, 1992). If chances for medical survival and psychological stability are good, the person is then placed on the national transplant waiting list. The waiting list consists of two parts, severity of condition and closest match to the recipient (Shanteau & Harris, 1990). Once a donor is found, a transplant team will fly to the donor to retrieve the organ. The organ is then placed in a saline solution within a cooler for transportation (Fox, 1999). The time a transplant team has to retrieve an organ varies depending on the organ. While most organs need to be recovered immediately, they can be stored from a maximum of three hours for a heart to seven days for a cornea (Smith, 1990). While the transplant team is collecting the organ, the recipient is taken to the hospital to be prepared for the operation. (Fox, 1999).

After the operation the patient is kept in strict isolation to prevent contamination. The patient is also given an immunosuppressant, or one of the other medications to prevent the body from attacking the new donor organ (Fox, 1999). Transplant recipients usually remain in the hospital for a week to a month depending on how well they have accepted the transplanted organ (Nolon & Augustine, 1995). During this time the patients and caregivers could benefit from having a health educator act as a resource person throughout the recovery process following a transplant.

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Types of Transplants

The four types of transplants are: from a brain-dead donor, live donor, self-donation, and xenotransplantation. The later three types of donations offer alternatives to supplement the shortage of organs from brain dead donors.

A transplant from a live donor is most commonly performed with kidneys and bone marrow. The donated organ usually is donated from a parent or sibling to reduce risk of rejection.

Self-donation is a term used by the researcher to describe the use of blood vessels and skin grafts taken directly from the same patient and transplanted elsewhere in their body. Self-donation assists those patients with heart disease, victims of disfigurement, and severe burns. The transplantation of blood vessels from the legs to the heart helps to reroute the blood from blocked arteries. Skin grafts while, helping correct disfigurement, can also assist to restore organs so that they can function properly (Smith, 1990). Self-donation also assists in the development of other transplant techniques (Smith, 1990).

A fourth type, xenotransplantation uses organs from a different species, is once again being tested (Baker, 1996). Xenotransplantation is an option for consideration when a shortage exists (Baker, 1996). It was first attempted in the 1960's using baboon and chimpanzees, but failed because of rejection from the immune system. After the initial failure, scientists quit looking at xenotransplantation as an option (Baker, 1996). Xenotransplantation was again attempted in the United States in the early 1980's with the famous case of Baby Fae, who received a heart transplant from a baboon on October 15, 1984. She survived for almost a month. Until recently, the procedure has not been attempted. Recently, baboon bone marrow has been successfully grafted into an AIDS patient (Baker, 1996).

Scientists are also experimenting with cows and pigs to help reduce the shortage of organs and tissues available for transplantation. Although not an entire transplant, the pericardial sac from a cow has been used to prolong human lives (Gutkind, 1988). Swine tissues are now being considered for use in transplants because of their fast growth rate and because their organs are close to the size of humans (Baker, 1996). While the xenotransplantation may save lives, the ideal organs come from humans.

By understanding the various types of organ donation, health educators can better explain the procedures and risks of each to the patient. This may help reduce their fears and anxiety of potential donors and patients.

Methods of Organ Donation and Allocation

There are two types of organ donation systems, contracting in and contracting out. The system regulated by law in the United States is regarded as a contract-in system. In this system an individual must state formally in writing prior to death of the intent to donate. Many states allow a statement of intention on the donor's driver's license. However, this can be voided by the next of kin, whose permission is legally required to proceed with harvesting the organ (Norris & House, 1991).

Currently in the US, the donated organs are allocated to stay within a specific geographic region decided by United Network for Organ Sharing (UNOS) (Guadagnoli et al., 1999). This allows for organs such as the heart or lungs, which are time-dependent, to reach the recipient in time. There is some debate regarding allowing the organs to leave the region from which they were harvested, but nothing has been finalized yet (Fox, 1999). In March 2000, UNOS agreed to expand geographic areas for allocation of organs (Meckler, 2000). Wisconsin, a state with one of the highest donor rates in the country, is not satisfied with this agreement because they stand to lose organs for their patients (Price, 2000). European countries in close proximity to each other have entered into organ regions to increase the supply of available organs (Abbott, 1993). The joining of the countries is more feasible for Europe, than in North America, due to the geographic hindrances in delivering the organ in a reasonable amount of time.

The system many countries in Europe use is the contracting out system, or presumed consent (Kittur, Hogan, Thukral, Johnson McGaw, & Alexander 1991). This allows hospitals to presume that everybody is a donor, unless there is written statement otherwise. In Belgium, people who wish to have their names removed from the donor list must do so at the town hall (less than 2% has done so) and it is then entered in a computerized database accessible from all the hospitals in the country (Kennedy et al., 1998). There has been some support for the presumed consent method in this country to increase the available organ pool, but such a proposal has never been passed by the Senate Subcommittee (Kittur et al., 1991).

Health educators should keep informed about all sides in the debate of organ allocation. This will help them to better advocate on the state and federal level.

Influences on Attitudes Regarding Organ Donation

Influencing attitudes of organ donation is an area where health educators are likely have the most impact, but they need to be aware of both positive and negative attitudes regarding organ donation among the population. Prejudice, fear, acceptance of death, knowledge, and altruism have all been identified as potential influences on attitudes of organ donation.

Prejudice is a factor in not only refusal to donate, but also refusal of medical staff to approach families for donation (Guadagnoli et al., 1999). In various regional hospitals Caucasian families (79%) were more likely to be approached and asked for organ donation than were African-American families (67%) (Guadagnoli et al., 1999). A possible reason

for this is how the various hospitals relate to African-Americans. Some donors also try to put stipulations on donating their organs by dictating the race of the recipient.

Fear and acceptance of death impact people's willingness to become an organ donor. Doctors not saving their life should they be in an accident was commonly listed by the non-donors as the main reason they did not want to donate (Saub, Shapiro, & Radecki, 1998). Non-donors were concerned with the appearance of their body after death, and were afraid that they could not have normal funeral proceedings (Shanteau & Harris, 1993). They felt that they were automatically cremated and could not have an open casket during a visitation (Saub et al., 1998). However, this is not true. Organ donors can still have and open casket, with no visible signs of organ removal. Health educators could help combat such myths through educational efforts.

People's acceptance of their own mortality impacts their willingness to donate. This does not just apply to those considering signing a donor card, but also to health care professionals. Health care professionals' attitudes toward death either their own and /or the patient's death impacts their willingness to approach the families to ask for the organs (Fentiman, 1994). If the person has a negative or fearful attitude regarding death then they will be less likely to approach a family on issue of organ donation.

Research has found that the more knowledgeable people are about organ donation, the greater likelihood that they will be willing to be donors. Heath educators have a responsibility to plan effective health education programs, why not on the topic of organ donation? Education regarding organ donation has been found to increase individual support of organ donation and their willingness to donate (Rubens, Oleckno, & Ciesla, 1998). High levels of knowledge also have been found to correlate with lower levels of fear regarding organ donation (Kopfman & Smith, 1996).

Altruism, wanting to help others, is one of the main factors with those who are potential organ donors. Self-reported altruism was higher in donors than non-donors (DeLong, 1993). Ninety percent of the donors in this study reported that they donated because they wanted to help others (DeLong, 1993). Altruistic individuals tend to be more open-minded, accepting and willing to help others with things such as donating organs (Kopfman & Smith, 1996). Altruism would increase their likelihood of actually signing the organ donor card and informing their families, rather than just saying that they support organ donation. Family members were also more likely to donate organs of a loved one, if the deceased was perceived as altruistic (Shanteau & Harris, 1990). The family members are likely to feel that they have made an important contribution to society (Shanteau & Harris, 1990). Family approval is important since it is required by law before organs are removed, even if the deceased has signed a donor card (Saub et al., 1998).

To be effective advocates, health educators need to be aware of attitudes toward organ donation, and how they impact people's willingness to become donors. Health educators should also be aware of their own attitudes regarding organ donation.

Implications for Health Educators

It has been suggested that physicians, nurses, chaplains, and social workers become more involved in educating people to become organ donors (Guadagnoli et al., 1999). Health educators should also be included in this process. Health educators could become advocates for organ donation because they can be strong advocates for organ donation. They should work along with other professionals in the service field to encourage clients and patients to become organ donors and to discuss it with their families.

Organ donation may be best viewed by health educators from the perspective of the responsibilities of entry-level health educators (National Commission for Health Education Credentialing,1996). Health educators can help to increase organ donation by planning and implementing effective education programs for a variety of different target populations. These programs should be individualized for each community based on the assessment of community attitudes and beliefs. What may work for one community may not work for another. Many people lack accurate information regarding organ donation. More than one half of the respondents in the Orange County, California study did not know that the permission of the next of kin is required to donate organs (Saub et al., 1998). Addressing concerns and misconceptions through educational programs can help to make the decision to donate easier for not only the individual wanting to donate, but also the family members who would ultimately be required to make the final decision.

Health educators also have a responsibility to act as a resource person on health related issues in the community. Organ donation should be one of these issues. By acting as a resource person, health educators could help reduce misconceptions and fears regarding organ donation, by providing the community a contact person to go to with questions. In doing so health educators would help increase the number of potential donors, and make people more comfortable with the decision to donate.

Although health educators have many issues to address, organ donation is an important one that they should not ignore. Organ donation advocacy fits well into the responsibilities of entry-level health educators. The key responsibilities for organ donation advocacy would be planning and implementing health education programs, as well as acting as a resource person in the community. To be more effective in this task, health educators will need to have an understanding of the history of transplants, transplant procedures, basic terminology, types of transplants, and especially how attitudes regarding organ donation affect people's willingness to donate their organs. Health educators will need to be more vocal in the future to encourage more people to be

come organ donors. This is an area where health educators have the potential to turn a tragic death into a second chance of life for a person.

Health educators who are interested in the area of organ do nation are encouraged to investigate the following resources: UNOS at unos.org and/or their state organ procurement organization, which can be found at the UNOS website.

References

Abbott, A. (1993). German law could boost prospects for organ transplants. *Lancet, 341*, 863.

Baker, B. (1996). Experts ponder the ethics of xenotransplantation. *Bioscience, 46*, 643.

Craven, J., & Rodin, G. M. (Eds.). (1992). *Psychiatric aspects of organ transplantation.* Oxford, Great Britain: Oxford University Press.

Delong, W. R. (Ed.). (1993). *Organ transplantation in religious and social context: No room for death.* New York: Haworth Pastoral Press.

Fentiman, L. C., (1994). Organ donations: The failure of altruism. *Issues in Science and Technology, fall*, 41-48.

Fox, C. (1999, November). Heartless. *Life*. 125-138.

Guadagnoli, E., McNamara, P., Evanisko, M. J., Beasley, C., Callender, C. O., & Poretsky, A. (1999). The influence of race on approaching families for organ donation and their decision to donate. *American Journal of Public Health, 89*, 244-247.

Gutkind, M. (1988). *Many sleepless nights.* NY: W. W. Norton and Company Inc.

Kennedy, I., Sells, A. S., Guttmann, R. D., Hoffenberg, R., Mock, M., Radcliffe-Richards, J., & Tilney, N. (1998). The case for Apresumed consent@ in organ donation. *The Lancet, 351*, 1650-1655.

Kittur, D. S., Hogan, M. M., Thukral, V. K., Johnson McGaw, L., & Alexander, J. W. (1991). Incentives for organ donation? *The Lancet, 338*, 1441-1443.

Kopfman, J. E., & Smith, S. W. (1996). Understanding the audience of a health communication campaign: A discriminant analysis of potential organ donors based on intent to donate. *Journal of Applied Communication Research, 24*, 33-49.

Lamb, D. (1990). *Organ transplants and ethics.* London: Routledge.

Meckler, L. (2000, March 14). Transplant network changing policy. *The Wire-Associated Press* [On-line]. Available: http://wire.ap.org/Apnews/center_story.html FRONTID =NATIONAL$&STORYID=APIS736N43O0 National Commission for Health Education

Credentialing. (1996). *A competency-based framework for professional development of Certified Health Education Specialists.* Allentown, PA: National Commission for Health Education Credentialing, Inc.

Nolan, M. T., & Augustine, S. M. (1995). *Transplantation nursing: Acute and long-term management.* Norwalk, CT: Appleton & Lange.

Norris, M. K., & House, M. A. (1991). *Organ and tissue transplantation: Nursing care from procurement through rehabilitation.* Philadelphia: F.A. Davis Company.

Price, J. (2000, March 20). Wisconsin sues over organ rules. *The Wire-Associated Press* [On-line]. Available: http://wire.ap.org/Apnews/center_story.html FRONTID =NATIONAL$&STORYID=APIS73BDN900

Rubens, A. J., Oleckno, W. A., & Ciesla, J. R., (1998). Knowledge, attitudes, and behaviors of college students regarding organ/tissue donation and implications for increasing organ/tissue donors. *College Student Journal, 32*, 167-178.

Saub, E. J., Shapiro, J., & Radecki, S. (1998). Do patients want to talk to their physicians about organ donation? Attitudes and knowledge about organ donation: A study of Orange County, California residents. *Journal of Public Health, 23*, 407-417.

Shanteau, J., & Harris, R. J. (Eds.). (1990). *Organ donation and transplantation: Psychological and behavioral factors.* Washington, DC: American Psychological Association.

Smith, S. L. (1990). *Tissue and organ transplantation: Implications for professional nursing practice.* St. Louis, MO: American Association of Critical-Care Nurses.

Involvement of Illinois School Nurses in the Eight Component Model of Coordinated School Health Programs

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Abstract

As the nature and scope of health services for children have grown, the role of the school nurse has expanded to meet needs of diverse students. Previously comprised of three components, the school health model has broadened to include eight components as envisioned by Allensworth and Kolbe (1987). Because school nurses work directly with children, this model is significant to their profession. This survey examined involvement of Illinois school nurses in each segment of the Eight Component Model of the Coordinated School Health Program. Two hundred participants were selected randomly from a list of 520 Illinois School Nurse Association members. Respondents ranked the eight components in priority order based on their perceived level of professional involvement. The School Health Services component ranked first with 99.17% of respondents reporting activity in this component. Involvement in school physical education ranked lowest with 15% participation.

Introduction

At the end of the 19th century, health services became part of the formal school health program with an emphasis on control of communicable diseases, (Small et al., 1995). Through recognition of the effect of both physical and psychological health on student learning, the demand for school health services magnified and expanded to include additional components (Small et al., 1995). Traditionally, the school health program included three areas: school health education, school health services, and the healthful school environment (Bradley, 1997). Recently, with the increase of risky health behaviors and chronic diseases in the United States, the model expanded to include Aeight interactive components (Kann et al., 1995). The enhanced model adds the areas of physical education, counseling and psychological services, nutrition services, parent and community involvement, and health promotion for staff (Allensworth & Kolbe, 1987). Success of these components depends on many individuals who, in some way, reflect education and the children's ability to learn (Kann et al., 1995).

Due to an increasingly diverse population in schools, more children with multiple health needs now attend regular schools (Porter, 1993). The complex requirements of these medically fragile students can be met only through onsite school nurse programs (Shearer, 1994). In the past, duties of school nurses primarily included communicable disease control and verification that students were healthy and attending school (Passarelli, 1994). Today, with an increased demand for health services, the duties of school nurses broadened to include emergency health care needs, medication administration, health counseling and education, and program planning to benefit all school-age children (Passarelli, 1994).

There is a tremendous opportunity for nurses in schools to enhance students health status. National recognition of the potential contribution of schools and nurses to reforming health care in this country represents a broad public mission (Salmon, 1994). Through health promotion, disease prevention, and other health-related activities, school nurses provide immediate care and can truly influence the health of school-age children, thereby increasing their ability to learn. Although school nurses often feel uncertain about their role within this larger team effort, they enjoy increasing opportunities to provide expertise and assistance (Papenfus & Bryan, 1998). Innovative health education programs for students, such as *Tar Wars*, a successful anti-tobacco program designed for fifth grade students, provide possibilities for nurses to both facilitate and implement programs (Mahoney, Costley, Cain, Zaiger, & McMullen, 1998). As school health programs continue to target high risk behaviors, school nurse efforts in primary prevention through school-based programs can help motivate students and improve their health status.

As school-based health centers (SBHCs) continue to grow with nearly 1,000 currently established, the role of the school nurse faces rapid change (Hacker & Wessel, 1998). Teachers, administrators, and parents often assume school nurses and health educators possess knowledge and skills necessary to address controversial and sensitive issues. Unfortunately, school nurses possess different abilities among themselves due to having dissimilar qualifications. With approximately 30,000 nurses providing services in the nation's 110,000 schools, no national standards exist to specify entry-level education and experience required to provide school health services. Fortunately, most school nurses hold a baccalaureate degree and are registered nurses. Many hold certificates and credentials, some of which are required by individual states. Standardized tests for national certification include the National Board for Certification of School Nurses and the American Nurses Association (Bradley, 1997).

Currently, limited research exists concerning school nurse services. At the 1994 Conference on School Health Nursing Services, the need for school nurse research emanated as one of seven critical topics identified by participants. Recently, two professional organizations, the American School Health Association and National Association of School Nurses, collaboratively prioritized research topics of importance to school nurses reflecting suggestions from the 1994 conference (Bradley, 1998).

Additional research should address the problems of growing expectations and varying qualifications with lack of standardization for school nurses.

The growth of single-parent families, new waves of immigration, the growth of uninsured and under-insured populations, and increasing financial pressures on families have influenced what children need from both the educational and health care system (Hacker & Wessel, 1998, p. 409).

Traditional school health models are being re-evaluated and new models are arising while school nurses are challenged to collaborate with community providers (Hacker & Wessel, 1998). In an attempt to address such issues, this survey examined involvement of Illinois school nurses, who hold membership in the Illinois Association of School Nurses, in each segment of the Eight Component Model of Coordinated School Health Programs.

Methods

Sample

The sample included 200 licensed Illinois school nurses who held membership in the Illinois Association of School Nurses (IASN) at the time of the study. The 200 subjects were selected randomly from a list of all 520 members of IASN. Of the 200 Illinois school nurses surveyed by mail, 120 completed and returned the surveys for a 60% response rate. All respondents were female and 116 held Type 73 certification. This certification is granted to school nurses who are licensed as a registered professional nurse, hold a baccalaureate degree, and have completed 30 hours of required coursework (Salmon, 1994). The 200 subjects included both active and retired IASN members.

Of the 520 IASN members, 30 were selected randomly to participate in a pilot administration. By using systematic sampling, every 17th name was chosen. After the names were selected, they were removed from the remaining list. Of the 490 names remaining, every third name was selected to identify 200 school nurses for the sample. Approval for the study was granted by the Human Subjects Committee at Southern Illinois University. School nurses participated voluntarily and remained anonymous.

Instrumentation

Because no appropriate survey instrument existed, items for the School Nurse Survey were developed using three professional sources describing the Eight Component Model of Coordinated School Health: *Eight Component Assessment*, Appendix A of Healthy Students 2000 (1994); *Principles of Health Education and Health Promotion* (Butler, 1994); and *The Comprehensive School Health Program: Exploring an Expanded Concept* (Allensworth & Kolbe, 1987). From these sources, three questions for each of the eight components were designed. The 24 items addressed activities included in the Eight Component Model of Coordinated School Health Programs. Because each component describes various services, three items were constructed to cover activities most common to that component. The activities included in the survey must have been present in at least two of the three professional sources reviewed.

After constructing the instrument, a panel of three experts in school nursing reviewed the draft for content validity. Each panelist completed recommendation sheets making suggestions concerning the 24 items. Items were retained on the final survey only if all three individuals recommended retaining the item.

Pilot Study

To determine reliability, the test-retest method was used during the pilot administration. During the first week of February 1997, the instrument was sent to 30 school nurses. A cover letter explained the purpose of the study and prepared them to receive a second copy of the survey within several days of returning the first. The surveys were coded on the back page with numbers for the purpose of matching after the researcher received the first. When the first survey was received, a second copy of the survey was sent to that same individual two days later. A new cover letter giving instructions and thanking them for their participation was attached. Of the 30 school nurses randomly selected to participate in the pilot administration, 17 (57%) completed and returned both surveys. Of these individuals, 94% reported the same information on both questionnaires producing a reliability coefficient of .94.

Procedures

After the pilot test, surveys were mailed to 200 Illinois school nurses on March 10, 1997. They were asked to return the surveys within 10 days. The instrument included a cover letter explaining the purpose of the study and instructions to complete the survey. The school nurses were instructed to record their responses on the surveys and return them in the postage-paid return envelopes provided. Participants were informed the surveys were to be completed voluntarily and that all answers would remain anonymous. Five days after the surveys were mailed, reminder post cards.

Data Analysis

The data were analyzed using the Lotus program. Answers to four demographic items were coded using single digit numbers. Answers to 24 items concerning participation in activities described by the Eight Component Model also were

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numerically coded. Participation in each component was determined using frequencies and percentages. First, the eight individual components were ranked in order by priority based on school nurse involvement. To determine the ranking, percentages and frequencies were conducted according to the number of school nurses who reported participating in at least one of the three activities listed. Next, participation of school nurses in each of the three elements under each component was determined. Percentages and frequencies also were calculated for the 24 individual questions.

Results

All participants completed the demographic questions and checked the appropriate spaces next to the activities in which they participated. Seven surveys, received after the deadline for return, were not included in the data analysis. Two additional surveys were returned to the researcher with notes explaining that the respondents were retired and did not think their information was valuable.

The School Health Services component ranked the highest of the eight components based on school nurse involvement. Of the respondents, 99.2% took part in at least one of the three activities listed under the School Health Services component. The School Counseling component and the Schoolsite Health Promotion for Faculty component both ranked second. Of the school nurses who responded, 97.5% reported being involved in at least one activity under each of were mailed to all participants requesting completion of the surveys. The School Health Education component ranked fourth with 96.7% participation. The School Physical Education component ranked lowest with a reported participation rate of 15% (see Table 1).

Discussion

The survey design included several limitations. While subjects were selected randomly from the IASN membership, not all school nurses practicing in Illinois belong to IASN, so subject response may not accurately reflect the professional activities of all school nurses in Illinois. Likewise, selection of subjects from the IASN membership limits the generalizability of the data. However, since no similar studies have been conducted, the results are potentially useful in examining the topic.

Results from the survey produced several key findings. First, IASN members were most involved in the School Health Services component of the Eight Component Model and least involved in the School Physical Education component. Second, school nurses were more likely to deliver health information than to develop or evaluate the material. Reported participation in delivering health curricula was almost double that of developing or evaluating such curricula. Likewise, school nurses also were more likely to present or develop nutrition education material than to develop menu selection or prepare meals. Third, school nurses were more likely to counsel and provide referral services than to provide mental health programs. School nurses reported counseling and providing referral services more than twice as often as they provided mental health programs. Finally, most participants (96.6%) held a Type 73 certification.

With over 90% of school nurses surveyed reporting participation in five of the eight components, it is important to prepare nurses in the areas they are working. As found in this study, school nurses are most active in activities under the following components: School Health Services, School Counseling, Schoolsite Health Promotion, School Health Education, and Integrated School and Community. This information may be valuable in planning curriculum and deciding certification requirements of school nurses.

Table 1
Number and Percentage of Respondents who Reported Participation in at Least One Activity Under Each Component of the Coordinated School Health Program.

Rank	Component	Number	Percent
1	School Health Services	119	99.2
2	School Counseling	117	97.5
3	Schoolsite Health Promotion	117	97.5
4	School Health Education	116	96.7
5	Integrated School & Community	110	91.7
6	School Health Environment	106	88.3
7	School Food Service	72	60.0
8	School Physical Education	18	15

In regard to school nurse participation in each of the 24 activities, the three most frequently reported activities occurred in the School Health Services component. These activities included providing health prevention programs such as appraisals or screenings (99.2% participation), performing emergency care (98.3% participation), and ensuring health records (99.2% participation) (see Table 2).

Further research is needed to examine the educational backgrounds of school nurses working with school-age children. Though most IASN members held a Type 73 certification, others did not. This certification, granted to school

Table 2

Number and Percentage of School Nurses who Participated in Selected Activities Within Each of the Eight Components of a Coordinated School Health Program.

	Number	Percent
1. School Health Services Activities		
performing assessments	119	99.2
ensuring health records	119	99.2
performing emergency care	118	98.3
2. School Counseling Activities		
providing referral services	116	96.7
counseling students	98	81.7
providing mental health programs	44	36.7
3. Schoolsite Health Promotion Activities		
raising consciousness/knowledge	117	97.5
screening faculty	77	64.2
wellness program for faculty	68	55.8
4. School Health Education Activities		
delivering health instruction	112	93.3
developing health curricula	59	49.2
evaluating health curricula	47	39.2
5. Integrated School & Community Activities		
advocating parent involvement	108	90.0
planning among school & community	88	73.3
providing a school based clinic	18	15.0
6. School Health Environment Activities		
ensuring school safety	99	82.5
ensuring physical condition of building	79	65.8
preventing sexual harassment	34	28.3
7. School Food Services Activities		
presenting/developing ed. material	71	59.2
developing nutritious menu selection	6	5.0
preparing meals	0	0.0
8. School Physical Education (p.e.) Activities		
evaluating p.e. curricula	13	10.8
delivering p.e. curricula	6	5.0
developing p.e. curricula	5	4.2

nurses who are licensed as a registered professional nurse, requires a baccalaureate degree and 30 hours of required coursework. Further research should address whether these requirements prepare school nurses to work in activities found to be most significant in this study, essentially all activities under the School Health Services Component. Because no national standards currently specify entry-level education and experience required, research is needed to determine the varying competency levels of school nurses. A required, standard certification of school nurses might benefit children by ensuring equal and adequate care. Although the school nurses in this study were Type 73 certified, additional training of others may vary greatly.

Continued education and training are also needed to update school nurses and increase knowledge. As the complexity of the students needs expand, so should the knowledge and capacity of the school nurse. As implied by this study, continuing education credits earned in areas described in the school health services component would most benefit school nurses and the student population they serve. These

include performing assessments and/or screenings, performing emergency care, and ensuring health records.

To best serve the students, it is imperative for school nurses and health educators to work together. Whether providing in-services, communicating ideas, or continuing relevant research, health educators can provide resources and assistance to aid school nurses in providing care. With a broad mission to improve the health care of children, our combined efforts will prove to be most successful.

References

Allensworth, D. D. & Kolbe, L. J. (1987). The comprehensive school health program: Exploring an expanded concept. *Journal of School Health, 57*(10), 409-412.

Bradley, B. J. (1998). Establishing a research agenda for school nursing. *Journal of School Health, 68*(2), 53-61.

Bradley, B. J. (1997). The school nurse as a health educator. *Journal of School Health, 67*(1), 3-8.

Hacker, K. & Wessel, G. L. (1998). School-based health centers and school nurses: Cementing the collaboration. *Journal of School Health, 68*(10), 409-414.

Kann, L., Collins, J. L., Pateman, B. C., Small, M. L., Ross, J. G., & Kolbe, L. J. (1995). The school health policies and programs study (SHPPS): Rational for a nation wide status report on school health programs. *Journal of School Health, 65*(8), 291-294.

Mahoney, M. C., Costley, C. M., Cain, J., Zaiger, D., & McMullen, S. (1998). School nurses as advocates for youth tobacco education programs: The TAR WARS experience. *Journal of School Health, 68*(8), 339-341.

Papenfus, H. & Bryan, A. A. (1998). Nurses involvement in interdisciplinary team evaluations: Incorporating the family perspective into child assessment. *Journal of School Health, 68*(5), 184-189.

Passarelli, C. (1994). School nursing: Trends for the future. *Journal of School Health, 64*(4), 141-149.

Porter, J. (1993). School nurse issue standards for practice. *Education Week, 12*, 23-40.

Salmon, M. E. (1994). School (health) nursing in the era of health care reform: What is the outlook? *Journal of School Health, 64*(4), 137-140.

Shearer, R. M. (1994). Emergency care training for school nurses in Fairbanks, Alaska. *Journal of School Health, 64*(8), 340-341.

Small, M. L., Majer, L. S., Allensworth, D. D., Garquhar, B. K., Kann, K., & Pateman, B. C. (1995). School health services. *Journal of School Health, 65*(8) 319-326.

Evaluation of Environmental Approaches to Control for Indoor Allergens and Reducing Asthma Morbidity Among Children and Adolescents

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Authors Notes

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Abstract

Increases in prevalence, morbidity, and mortality rates have made asthma a recognizable public health problem for America's youth. Of particular concern is the fact that a disproportionately large percentage of children and adolescents with asthma are from disadvantaged or disenfranchised groups. Medical and behavioral approaches designed to reduce asthma morbidity and mortality have had limited success. In light of this, and in response to the increasing asthma rates, health care providers are placing a greater emphasis on asthma prevention and management. Environmental control of common household triggers that may exacerbate asthma is examined in this paper, particularly with regard to house dust mite and cockroach allergens. Through a literature review, the relationships between level of environmental control efforts, level of indoor allergens, and level of asthma morbidity are analyzed. Our investigation reveals that efforts to reduce house dust mite and cockroach allergens have achieved only modest success. Furthermore, a mediating variable B sensitivity to allergens B has been shown to interact with indoor allergen levels, suggesting that both are needed to trigger asthmatic episodes. The authors suggest that the previous moderate success achieved by allergen reduction techniques might be increased by an experimental design that includes allergen sensitivity as a criterion for participant selection. Additionally, because many of the recommended environmental control techniques designed for indoor air quality improvement are costly and time-consuming, it is recommended that health professionals and educators strive to offer creative and cost-effective ideas for indoor allergen reduction and control, in an effort to better address the needs of disadvantaged or disenfranchised groups who may encounter barriers to the currently recommended techniques.

Introduction

Increases in prevalence, morbidity and mortality rates make asthma a recognizable public health problem. While morbidity and mortality rates attributed to asthma are increasing, changes in the health care industry have led to fewer episodes of hospitalization, shorter stays, and increases in outpatient services for the estimated five to 20 percent of children and adolescents who have chronic illnesses or chronic conditions (e.g., asthma, cystic fibrosis, diabetes) (Milavic, 1985). As a result, these individuals and their families find themselves shoulde-ng a greater proportion of medical treatment and are faced with responsibilities formerly under the domain of health care professionals. A comprehensive treatment approach to asthma includes focusing on the environment in which asthma patients spend a significant amount of time (e.g., home, school, work). Therefore, an investigation of environmental control techniques designed to prevent asthma exacerbation is warranted (Creer & Bender, 1995; National Heart, Lung, and Blood Institute [NAEP], 1991). Specifically, environmental approaches to the management of asthma include an emphasis on the reduction and control of indoor allergens. For the purpose of this paper, the authors will focus on dust mites and cockroach allergens - agents which have been linked to the exacerbation of asthma.

Asthma: Prevalence, Morbidity & Mortality

Asthma is the seventh-ranking chronic condition in America, affecting 14.6 million persons (American Lung Association [ALA], 1999), and is the most common chronic illness in children and adolescents living in the United States (Creer & Bender, 1995). It is a condition defined by the National Heart, Lung, and Blood Institute (1991) as Aa lung disease characterized by an airway obstruction (or narrowing) that is usually reversible either spontaneously or with treatment; airway inflammation; and airway hyper-responsiveness [sic] to a variety of health stimuli (p. 1). Based on this definition, epidemiological data indicate that asthma affects 69.1 per 1000 children and adolescents under the age of 18 years (Centers for Disease Control [CDC], 1996; Creer & Bender, 1995). Furthermore, the impact of asthma reaches beyond that of patients with this condition. It indirectly affects a large number of people, as nearly one in five American households includes one or more family members who have asthma (See Table 1) (ALA, 1999).

Asthma mortality has risen tremendously within the past decade (Creer & Bender, 1995). Since 1979, the age-adjusted death rate has increased 67 percent (from 0.9 to 1.5 per 100,000) (ALA, 1999). Indeed, the American Lung Association reports that more than 5,600 deaths are attributed to asthma in the U.S. annually (ALA, 1999). A remarkable disparity exists between asthma death rates for racial groups.

Table 1.

Age-Specific Prevalence Rate (1994, per 1,000)

Age Categories			
<18	18-44	45-64	65+
69.1	51.7	50.8	50.5

The asthma-related mortality rate for African-Americans is 3.8 per 100,000 as compared to the 1.9/100,000 rate reported among the white population (see Table 2). The differences are particularly acute among youth. Among children and adolescents (up to 18 years of age), similar trends indicating three-fold increase in deaths from asthma are also found, with African-American children being over-represented in these statistics (ALA, 1999).

consequences may be reflected in reduced educational and career opportunities.

The consequences of the illness are felt by the family and friends of children and adolescents with asthma. Members of the social networks of youths with asthma may need to curtail their involvement in activities (e.g., family outdoor picnics during allergy season), limit access to opportunities (e.g., a job promotion requiring moving to an urban area),

Table 2.

Age-Adjusted Mortality Rate by Sex for Blacks and Whites (1995, per 100,000)

Blacks		Whites	
Male	Female	Male	Female
3.6	3.9	1.0	1.5

Impact on Lifestyle: Why Asthma Is a Problem

Asthma is a disease with a highly variable degree of severity (Lemanek, 1990), characterized by intermittent phases of acute pulmonary exacerbation, leading to the inability to breathe (Creer & Bender, 1995). The residual effects of living with long-term illnesses such as asthma are pervasive. Having asthma can impair physical, cognitive, emotional, and social development of children and adolescents (LaGreca, 1994). Indeed, illnesses like asthma may result in physical immobilization, which, in turn, limits access to opportunities and environments (e.g., schools, playgrounds) that are key to normative development. School absences due to asthma are among the leading causes of absenteeism (Creer & Bender, 1995; Christianaase, Lavigne & Lerner, 1989).

On average, a child with asthma will miss one full week of school each year due to the disease (ALA, 1999). The long-term consequences of extended absences may include poorer academic performance and difficulty establishing and maintaining peer relations. For children reaching adulthood, these

and cope with interferences with daily living activities (e.g., performing housework only during periods when the individual with asthma is not home). The American Lung Association (1999) cites that the economic cost of asthma is a staggering $673.2 million, which includes factors such as lost school days, and time lost from work for the primary caregiver. Despite the increase in the reported effectiveness of new and improved pharmacological treatments of asthma, and despite the increases in information available about asthma, the threat of this condition continues to become more acute, and points to the need for the evaluation of non- medical approaches to the management of asthma.

Environmental Approach: Why It Is Warranted

In response to increases in prevalence, morbidity and mortality, health care providers are trying new approaches, with a greater emphasis given to asthma prevention and management (CDC, 1996). The National Heart, Lung and Blood Institute (1991), through the National Asthma Educa-

tion Project (NAEP), contributed to the implementation of a set of guidelines for diagnosis and management of this illness, increased the efficacy of prevention and control efforts, and improved asthma education among patients and their families. One focus of the NAEP is on environmental control of the common household triggers that may exacerbate asthma.

The Role of Indoor Allergens in Asthma

During an active asthma attack, there is hyper-constriction of the airway. The inflammation of the bronchial tubes is believed to be related to the body's immune system hyper-responding to airborne irritants (Kuster, 1996). For individuals without asthma, the body's natural filtering devices (e.g., airway and bronchial cilia, mucus) are sufficient to prevent irritants from entering deep into the air passages. However, for persons with asthma, exposure to common microparticles may result in the development of an allergic reaction.

Research does indicate that there is an association between poor air quality (e.g., the presence of common indoor elements such as household dust, tobacco smoke) and asthma (Ruttenber & Kimbrough, 1995). Rosentreich et al., (1997) list several common indoor elements that have been linked to asthma, including house dust mites, animals (domestic and wild), mold, tobacco smoke, and cockroaches. Specifically, the byproducts of these common household elements (e.g., dust mite fecal matter, animal dander, etc.) are believed to be responsible for the hyper-responses of persons with asthma (Blumenthal & Ragsdale, 1995).

While there is a plethora of elements in the environment that can serve to aggravate asthma (e.g., pollen, air pollution, etc.), most of these hazards are beyond the control of the individual with asthma and their families. This may be particularly true for families from disenfranchised groups. For example, people with limited job prospects and economic resources may not be able to move away from areas with high levels of industrial air pollution. Therefore, controlling their child's exposure to polluted air may be difficult, if not impossible. Furthermore, it is less likely that people under such circumstances would have the time, energy, and resources to lobby for tighter laws and policies on industrial air pollution. Therefore, they are less likely to be able to improve their child's health by effecting large-scale changes through policy and legal efforts. However, it is possible to effect environmental changes on a more modest scale by engaging in control methods to reduce allergen levels in the home, thereby improving the quality of the indoor air environment.

Behavioral & Medical Approaches to Asthma: What Has Been Done in The Past

According to Lemanek (1990), the medical management of asthma can be categorized into three stages: *maintenance* (prevention of attacks during asymptomatic periods), control of *acute attacks* (preventive efforts aimed at minimizing the negative impact of acute attacks), and *status asthmatic* (active attack). While asthma mortality rates are rising, resources for in-depth personalized treatment are declining - due, in some part, to changes in the health care industry. As previously stated, these conditions result in higher levels of self-care for children and adolescents with asthma and their families. Therefore, it is even more critical that these individuals and their adult caregivers carefully follow treatment regimens as prescribed by their health care providers. While a perfect correlation between Aadherence to a medical regimen and the ensuing health outcomes does not exist, it is evident that children who fail to take their prescribed medication are placed at higher risk for asthma mortality (ALA, 1999).

Despite these risks, it is reported that a significant portion of children and adolescents with asthma fail to adhere to their recommended medical regimen during asymptomatic periods (Creer & Bender, 1995). While treatment adherence rates for many chronic illnesses are low (Lemanek, 1990), the rates for asthma treatments among children and adolescents are especially low, ranging from 30 - 70% (Creer & Bender, 1995; Baum & Creer, 1986). Indeed, the benefits of new and improved pharmacological treatment cannot be realized if treatments are inconsistently applied. Poor adherence has a spectrum of consequences, including worsening of symptoms, increases in asthma attack frequency, and even death (Creer & Bender, 1995). In light of the evidence that indicates only moderate success with pharmacological and behavioral approaches to reducing asthma morbidity and mortality, there is a need to explore other solutions to this problem.

Control of Indoor Allergens

It has been established that medical and behavioral approaches designed to reduce asthma morbidity and mortality have limited success. Given this, a research question must be posed: Can an environmental approach, targeting the reduction and control of indoor allergens, play a positive role in the management of asthma?

There is a plethora of indoor allergens that have alleged association with asthma and the exacerbation of the illness. However, covering all the potential irritants is not possible within the scope of this paper. Therefore, this paper will focus on two types of allergens that have been empirically demonstrated to be asthma-triggers: cockroach allergens and dust mite allergens.

Furthermore, since control efforts can take countless forms, an important step is to include an operational definition of environmental approach. For the purposes of this paper, the definition will include (a) removing indoor allergens via vacuuming, washing bed linens in hot water, insecticide use, other cleanliness efforts, and (b) confining indoor allergen levels

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by encasing allergens to reduce spread indoors (e.g., mattress casings). Again, the objectives of this review are to evaluate the effectiveness of environmental control in reducing indoor dust mite and cockroach allergen levels, and to determine whether such reductions have demonstrated effectiveness in reducing incidents of asthma morbidity.

Based upon available literature, it is hypothesized that there exists a relationship between environmental control efforts and asthma morbidity. This hypothesis states that the level of environmental control efforts influences the level of indoor allergen, and thereby reducing the level of indoor allergens and morbidity of asthma.

House Dust Mite Allergen

House dust mites (HDMs) are minuscule insects (maximum diameter: 0.3 mm) related to ticks and spiders. HDMs live in housedust, and their body parts and excrement contain surplus enzymes which they use to digest skin dust. These enzymes are a leading cause of allergic disease (Asthma and Allergy Information and Research, Inc. [AAIR], 1999). HDM allergens found within the Pyroglyphidae family, genus *Dermatophagoides*, particularly D. *pteronyssinus* and *D. farinae*, are a major contributor to asthma morbidity (AAIR, 1999; Custovic, Taggart, Francis, Chapman, & Woodcock, 1996). Furthermore, it has been suggested that the HDM agent is responsible for the worldwide increase in asthma prevalence (Carswell, Birmingham, Oliver, Crewes, & Weeks, 1996; Turner, Stewart, Woolcock, Green, & Alpers., 1988). While HDMs are present in nearly every household to some extent, their degree of prevalence depends upon cleanliness, as well as the amount of moisture in the house. HDMs collect in carpets, bedding, and mattresses. Small numbers may also spread from potted plants or be brought into the home from work premises and outdoor flora (Turos, 1979). Houses in dry climates, very cold climates or high altitudes have fewer mites, while houses in humid areas, temperate climates, and lower altitudes have more mites (AAIR, 1999).

The Role of HDM Allergens in Asthma Morbidity

HDM allergens have been demonstrated to elevate the clinical activity and symptoms of asthma (AAIR, 1999). A study by Sporik, Platts-Mills, and Cogswel, (1993) revealed that most children admitted to the hospital due to exacerbation of asthma were both exposed and sensitized to mite allergen. Furthermore, the same investigation demonstrated a positive correlation between continued exposure to high concentrations of mite allergens and hospital readmission (Sporik et al., 1993). HDMs are of particular concern in the United Kingdom, where 45% to 85% of asthma patients show skin reactivity to mites, as compared with 5% to 30% in the general population. Exposure to mite allergen prior to five years of age has been shown to increase prevalence of positive skin test results, and the infant cohort is particularly vulnerable (Custovic et al., 1996).

Empirical data have shown that living in surroundings with little or no dust mites improves or cures asthma in those people who show high-sensitivity to HDM allergens (AAIR, 1999; Marks, et al., 1994). High altitude, cold climates, and desert climates are all associated with a reduction in the number of HDMs, as well as a reduction in asthma prevalence (Carswell et al., 1996; Peak, Tovey, Mellis, Leeder, & Woolcock, 1993; Turos, 1979; Vervolet et al., 1982). Furthermore, admission to sterile hospital environments has also been correlated with a reduction in the severity of asthma symptoms (Platts-Mills et al., 1982).

Although these findings are valuable towards improving our understanding of the effects of HDMs on asthma patients, they do not contribute largely to the development of practical measures for alleviating HDM-associated asthma. Clearly, it is not reasonable or cost-effective to initiate geographic relocation of all asthma sufferers to higher altitudes, colder climates, or desert areas. For this reason, it is important to investigate alternative approaches. As mentioned above, environmental changes within the home, including the reduction of HDM allergen levels, may effect a positive change in asthma morbidity.

Reducing HDM Allergen Levels in the Home

There have been mixed results from studies which investigate the effects of reducing HDM allergens in the living environment of asthma patients (AAIR, 1999; Carswell et al., 1996). However, it has been shown that at least moderate improvements in asthma morbidity can result from mite removal procedures, particularly in those asthma sufferers who are exceptionally mite-sensitive or have experienced a high degree of mite exposure (Carswell et al., 1996; Custovic et al., 1996).

Custovic et al., (1996) examined the relationship between ongoing mite allergen exposure and asthma clinical activity and severity. Dust samples were collected from bedding, bedroom carpets, and mattresses in each subject's home and assayed for allergen content. Airborne dust samples were collected and analyzed as well. All subjects underwent skin testing with common inhalant allergies, a methacholine bronchoprovocation test, and pulmonary function testing on three separate occasions over a four-week period. Peak expiratory flow rate was recorded every two hours during all waking hours over the same test period.

Significantly higher levels of HDMs were found in mattresses and bedding than were found in bedroom carpets. HDMs were undetectable in 30 of 32 airborne samples, and Abarely detectable (p. 67) in two (Custovic et al., 1996). Sixty percent of the patients in the study had a positive response to mite allergens. Significant correlations were found

between bronchial hyperresponsiveness in the mite-sensitive patients and length of exposure to the allergen. The strongest association was shown with HDM levels contained in the bedding. Furthermore, their findings suggest that HDM levels in the mattresses and bedding are an important indicator of disease activity (i.e., highly sensitive patients have stronger reactions to higher allergen levels).

A 1994 study attempted to demonstrate that marked long-term reductions in mite allergen levels can be achieved (Marks et al., 1994). Additionally, the investigators assessed the benefits of long-term HDM reduction. According to the researchers, the majority of prior clinical trials concerning mite reduction had been conducted over test periods which were too short-term to provide beneficial data. Initial testing of the home environments for HDM levels showed that baseline allergen levels were high. Methodology included the active treatment of bedding, mattresses, pillows, comforters, blankets, carpets, and all furniture in the homes of 35 asthma patients recruited randomly from hospitals, allergy clinics, and local practitioners. The subjects were divided into two groups: one active group that received full HDM removal treatment for a period of nine months, and a control group which received placebo treatment for the same test period. A tannic acid/acaricide solution was used for HDM treatment. Furthermore, impermeable covers were used over mattresses, pillows, and comforters. Subjects, who were unaware of their status in the study (i.e., active vs. placebo) used diary cards to record peak expiratory flow rates two times per day, and lung function and airway responsiveness were measured at three-month intervals.

Active treatment resulted in a 29% reduction in allergen levels. Although trends were seen towards decreasing symptom scores, no significant correlations were found between the allergen reduction and peak flow variability, lung function or airway hyperresponsiveness. The authors concluded that in a high HDM allergen environment, simple chemical treatment and encasement of bedding may not be sufficient to cause a sustained, beneficial reduction in allergen levels. They point out that since substantial reductions in allergen concentrations were not achieved in this trial (less than 30%), failure to significantly influence the course of asthma was not surprising. Furthermore, it should be noted that subjects in this study were not tested for HDM sensitivity, and it is not known how many of these asthma patients, if any, were mite-sensitive. The lack of such information represents a serious limitation.

Gotzsche, Hammarquist, & Burr (1998) recently carried out an investigation to determine whether mite-sensitive asthma patients benefit from measures designed to reduce their exposure to HDM antigen in the home. They conducted a meta-analysis of 23 randomized trials that investigated the effects of both chemical and physical mite-control measures in an active and control group. Only patients who had been diagnosed as suffering from bronchial asthma and having a sensitization to HDMs were included in the study. Of the 23 trials utilized, 13 used physical methods (e.g., vacuum cleaning, heating, barrier methods, and air filtration systems) to reduce mite exposure, six used chemical methods (acaricidal), and four used a combination of both physical and chemical methods. The outcome measures utilized were: number of patients whose allergic symptoms improved, improvement in asthma symptoms, and improvement in peak expiratory flow rate.

The results of the meta-analysis showed that the total number of patients who improved after intervention was similar to the total number who improved among the control group. However, there was a higher degree of improvements in asthma symptoms among the active group than in the control group ($p<0.0001$). No statistically significant difference was found between peak expiratory flow rates in the two groups, although the active group mean was slightly improved. The investigators do not consider these findings to be strong, and suggest that the successful elimination of only one allergen (in this case, HDMs) may be of limited benefit to individuals who suffer from multiple-source allergies. Furthermore, they document several potential sources of bias which may have affected their results, including the lack of reported randomization methods in the studies they analyzed, small sample sizes, and the lack of researcher and patient blinding in many of the studies.

Other investigators believe that the mixed results produced by earlier studies were due to inefficiencies in methodologies and data collection. In an attempt to demonstrate that mite allergen removal could indeed be an effective therapeutic measure for asthma patients, Carswell et al. (1996) conducted a rigorous scientific trial which involved a sample population of 70 children with asthma, who had all been diagnosed as mite-sensitive. Each home environment had been confirmed to contain high levels of mite allergens in mattresses. The bedrooms of the active group were treated with an acaricide, and exclusion covers were utilized on mattresses, pillows, and comforters. The control group was placebo treated. The chemical treatment led to a median reduction of 480 ng (100%, baseline) in mite allergen on mattresses, while the control group experienced a 215 ng (53%) reduction. After six weeks, subjects in the active group demonstrated improved forced expiratory volume and fewer required bronchodilator therapy treatments, and there were fewer reported asthmatic symptoms than in the control group. These results demonstrate that chemical and physical methods of mite-reduction can be effective in areas of high HDM allergen levels, and that such mite reduction procedures can improve asthma symptoms and clinical activity in mite-sensitive individuals.

Cockroach Allergen

The Cockroach (CR) belongs to the class *Insecta*, order *Orthopotera*, and family *Blattida*. The *Periplaneta americana* (American CR) and the *Blatella germanica* (Ger-

man CR) are the species most common to the United States (Chapman et al., 1996). CRs have long been recognized as allergens. CRs can produce a variety of materials that may have potential allergenic consequences. Various secretions, egg casings, body parts, as well as excrement, can all be incorporated into household dust and can lead to the development of CR allergy. Although CR infestation is ubiquitous, it is greatest in urban areas. While a large number of inner-city dwellers have tested positive to CR allergy, a significantly higher number (70%) of individuals with asthma have concurrent CR allergy (Kang, Kambara, Yun, Hoppe, & Lai, 1995). Hot and humid environments are most conducive to CR infestation and, therefore, CR presence and subsequent health problems are more common in the southeast and south central regions of the U.S. (ALA, 1999).

The Role of Cockroach Allergens in Asthma Morbidity

CR-specific IgE antibody is an antigen carried by CRs and has been linked to the development of allergies, especially among persons with asthma (Garcia et al., 1994; Sarpong & Corey, 1998). In a study by Rosenstreich et al., (1997), almost 50% of subjects allergic to CRs had concurrent asthma, while the prevalence of CR allergies was lower among the control (non-asthma) group. Roberts (1996) reported significant differences in hospitalization rates between children who were both allergic to and exposed to high amounts of CR allergen as compared to their non-allergic peers (0.37 times per year versus 0.11 times per year). In another study, CR antigen inhalation produced immediate acute asthmatic reactions in 90% of CR-sensitive asthma patients, as well as delayed asthmatic reactions in 68% of the sample population, suggesting that CR antigen induces a dual asthmatic response following experimental antigen exposure (Garcia et al., 1994; Sarpong & Corey, 1998). Kang et al., (1995) studied the effects of immunotherapy among individuals sensitive to CR allergen. A significant reduction in both asthma symptoms and anaphylactic leukocyte sensitivity was found. In sum, there is a plethora of laboratory-based investigations that solidify the link between CR allergen exposure and asthma (see review article by Garcia et al., 1994).

Reducing Cockroach Allergen Levels in the Home

While extensive research has linked CR allergen exposure to asthma, few field investigations have been concerned with the effects of CR allergen reduction efforts. In other words, while studies on cockroach eradication efforts are common, few have systematically examined the link between the CR reduction efforts and asthma exacerbation. While educational articles designed to highlight CR control recommendation exist (Kuster, 1996), a limited number, if any empirical studies in this area exists. Therefore, there are no valid data available that link CR-specific reduction efforts to asthma morbidity. Clearly, this highlights a glaring gap in the literature.

Efforts have been made to understand the impact of CR-reduction efforts on asthma morbidity (Sarpong & Karrison, 1997). Indeed, experimental manipulations designed to reduce the presence of CR typically have resulted in the reduction of other indoor asthma-triggers (e.g., dust mites) (Rosentreich et al., 1997; Sarpong & Karrison, 1997). This phenomenon may be indicative of a confound in the research design, and this possibility is discussed later in this paper.

Conclusion

The objectives of this paper were to (a) evaluate the literature regarding the efficacy of control efforts to reduce indoor levels of two asthma-related allergens, and (b) to evaluate the effectiveness of such efforts on levels of asthma-related morbidity. As a result of the analyses of the literature two conclusions can be stated. First, efforts to reduce indoor allergens in the form of dust mites and cockroach have achieved modest success, with results ranging from barely detectable to a reported high of 29% (Marks et al., 1994). These modest findings may be attributed to limitations in the experimental design, and these issues will be discussed in the final section of this paper.

Second, while the model posited in this paper and by other investigators (Carswell et al., 1996; Chapman et al., 1996; Sarpong & Karrison, 1998) hypothesized that indoor allergen levels function to exacerbate asthma symptoms (see Figure 1), results from several studies indicate that another variable - sensitivity to allergens - interacts with indoor allergen levels, and both are needed to trigger asthmatic episodes. In other words, sensitivity to allergen, as depicted in Figure 1, serves as a mediating variable.

Figure 1. Hypothesized Relationship Between Environmental Control Efforts and Asthma Morbidity

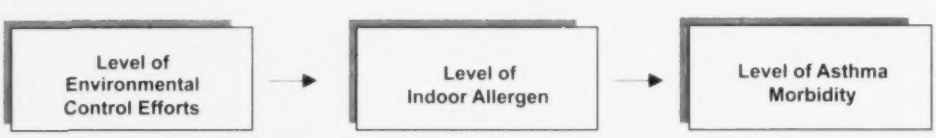
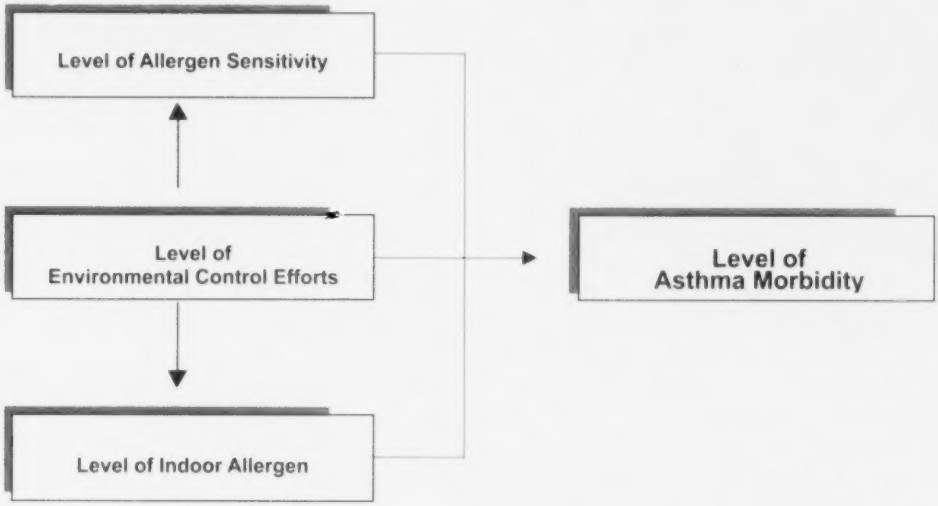


Figure 2. Relationship Between Environmental Control Efforts and Asthma Morbidity:
The Addition of Allergen Sensitivity as a Mediating Variable



Recommendations

Future Research Directions

Studies designed to reduce the indoor levels of specific allergens have achieved only modest results, and researchers have postulated that this may be a result of methodological limitations and confounds. For example, most individuals with asthma who have allergies are sensitive to multiple allergens (Gotzsche et al., 1998; Sarpong & Karrison, 1998). Therefore, reduction of one or two target irritants may not have an impact on the physiological response to allergens in general. Furthermore, research findings may be compromised because efforts to reduce one type of allergen may result in a reduction in overall allergen levels. Clearly, such situations result in the confounding of the independent variables. While tighter controls are recommended for future research, the feasibility of such controls is questionable.

Great effort should be made toward increasing the knowledge base regarding the link between cockroach reduction efforts and asthma morbidity. While numerous laboratory-based studies have been published, there are insufficient studies which have tested CR reduction control techniques in a real world environment. This may be due, in part, to methodological limitations described in the previous paragraph. Nevertheless, more research is needed in order to advance our understanding in this area.

The introduction of the mediating variable (i.e., allergen sensitivity) raises possibilities to improve future research. While only a modest link is reported between allergen levels and asthma morbidity, the relationship appears to be much stronger among persons with both asthma and allergen sensitivity. Therefore, one recommendation for future research is to select participants based upon asthma severity and allergen sensitivity.

Future Directions in Practice

A disproportionately large percentage of individuals with asthma are from disadvantaged or disenfranchised groups (e.g., low socioeconomic status, ethnic/racial minority group) (Kuster, 1996). Consequently, they may face barriers which may hamper or prevent them from following recommendations for improving indoor air quality. For example, one suggestion to reducing dust mite allergen levels involves washing pillows regularly in hot water (130EF). For families who live in areas without laundry facilities nearby, it may be difficult and/or expensive to arrange transportation for themselves and their laundry - especially for items as voluminous as pillows. Several practical recommendations have been described in the literature (see Kuster, 1996, for more in depth review). In sum, the evidence evaluated in this paper suggests that in their efforts to inform people about environmental approaches to controlling asthma, health professionals and educators should offer creative and cost-effective ideas, and keep lifestyle and cultural factors in mind in order to better address the needs of disadvantaged or disenfranchised populations.

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References

Asthma & Allergy Information & Research, Inc. (1999). House Dust Mites. [Online]. Available: <http://www.users.globalnet.co.uk/~aair/mites.htm> [1999, June 1].

American Lung Association (1999). Asthma in Children. [Online].Available:<http://www.lungusa.org>[1999, June 1].

Baum, D., & Creer, T. (1986). Medication Compliance in Children with Asthma. *Journal of Asthma, 23*(2), 49-59.

Blumenthal, D. S., & Ragsdale, H. L. (1995). Air Pollution. In D. S. Blumenthal & J. Ruttenber (Eds.). *Introduction to Environmental Health* (2nd ed.). New York: Springer Publishing Co.

Carswell, F., Birmingham, K., Oliver, J., Crewes, A., & Weeks, J. (1996). The respiratory effect of reduction of mite allergen in the bedrooms of asthmatic children - a double-blind controlled trial.*Clinical and Experimental Allergy, 26*(4), 386-96.

Centers for Disease Control (1996). *Monthly Vital Statistics Report, 46* (1) Supplement.

Chapman, M. D., Vailes, L. D., Hayden, M. L., Benjamin, D. C., Platt-Mills, T. A., & Arruda, L. K. (1996). Structural and antigenic studies of cockroach allergens and their relevance to asthma. *Advances in Experimental Medicine and Biology, 409*, 95-101.

Christianaase, M. E., Lavigne, J. V., & Lerner, C. V. (1989). Psychosocial aspects of compliance in children and adolescents with asthma. *Journal of Developmental and Behavioral Pediatrics, 10*(2), 75-80.

Creer, T. L., & Bender, B. G. (1995). Pediatric Asthma. In M. C. Roberts (Ed.), *Handbook of Pediatric Psychology* (2nd ed.). New York: Guilford Press.

Custovic, A., Taggart, S. C., Francis, H. C., Chapman, M. D., & Woodcock, A. (1996). Exposure to house dust mite allergens and the clinical activity of asthma. *Journal of Allergy and Clinical Immunology, 98*(1), 64-72.

Garcia, D. P., Corbett, M. L., Sublett, J. L., Pollard, S. J., Meiners, J. F., Karibo, J. M., Pence, H. L., & Petrosko, J. M. (1994). Cockroach allergy in Kentucky: a comparison of inner city, suburban, and rural small town populations. *Annals of Allergy, 72*(3), 203-8.

Gotzsche, P .C., Hammarquist, C., & Burr, M. (1998). House dust mite control measures in the management of asthma: meta-analysis. *British Medical Journal, 317*, 1105-1110.

Kang, B. C., Kambara, T., Yun, D. K., Hoppe, J. F., & Lai, Y. L. (1995). Cross-reactivity of IgE-binding components between boiled Atlantic Shrimp and German Cockroach. *Allergy, 50*(11), 918-924.

Kuster, P. A. (1996). Reducing risk of house dust mite and cockroach allergens exposure in inner-city children with asthma. *Pediatric Nursing, 229*(4), 297-303.

La Greca, A. M. (1994). Assessment in pediatric psychology: What's a researcher to do? *Journal of Pediatric Psychology, 19*(3), 283-290.

Lemanek, K. (1990). Adherence issues in the medical management of asthma. *Journal of Pediatric Psychology, 15*(4), 437-458.

Marks, G. B., Tovey, E. R., Green, W., Shearer, M., Salome, C. M., & Woolcock, A. J. (1994). House dust mite allergen avoidance: a randomized controlled trial of surface chemical treatment and encasement of bedding. *Clinical and Experimental Allergy, 24*(11), 1078-83.

Milavic, G. (1985). Do chronically ill and handicapped children become depressed? *Developmental Medicine and Child Neurology, 27*(5), 677-682.

National Heart, Lung, and Blood Institute. (1991). National asthma education and prevention program. Available: http://www.nhlbi.nih.gov/about/naepp/index.htm

Peak, J. K., Tovey, E., Mellis, C. M., Leeder, S. R., & Woolcock, A. J. Importance of house dust mite and Alternaria allergens in childhood asthma: an epidemiological study in two climatic regions of Australia. *Clinical and Experimental Allergy, 23*, 812-820.

Platts-Mills, T. A., Tovey, E. R., Mitchell, E. B., Moszoro, H., Nock, P., & Wilkins, S. R. (1982). Reduction of bronchial hyperreactivity during prolonged allergen avoidance. *Lancet, 2*, 675-678.

Roberts, J. (1996). Cockroaches Linked with Asthma. *British Medical Journal, 312*(7047), 1630.

Rosenstreich, D. L., Eggleston, P., Kattan, M., Baker, D., Slavin, R. G., Gergen, P., Mitchell, H., McNiff-Mortimer, K., Lynn, H., Ownby, D., & Malveaux, F. (1997). The role of cockroach allergy and exposure to cockroach allergen in causing morbidity among inner-city children with asthma. *New England Journal of Medicine, 336*(19), 1356-63.

Ruttenber, A. J., & Kimbrough, R. D. (1995). The pathophysiology of environmental diseases. In D. S. Blumenthal & J. Ruttenber (Eds.). *Introduction to Environmental Health* (2nd ed.); New York: Springer Publishing Co.

Sarpong, S. B., & Corey, J. P. (1998). Assessment of the indoor environment in respiratory allergy. *Ear, Nose, and Throat Journal, 77*(12), 960-964.

Sarpong, S. B., & Karrison, T. (1998). Sensitization to indoor allergens and the risk for asthma hospitalization in children. *Annals of Allergy and Asthma Journal, 79*(5), 455–459.

Sporik, R., Platts-Mills, T. A. E., & Cogswell, J. J. (1993). Exposure to house dust mite allergen of children admitted to hospital with asthma. *Clinical and Experimental Allergy, 23*, 740-746.

Turner, K. J., Stewart, G. A., Woolcock, A. J., Green, W., & Alpers, M. P. (1988). Relationship between mite densities and the prevalence of asthma: comparative studies in two populations in the Eastern Highlands of Papua New Guinea. *Clinical Allergy, 18*, 331-340.

Turos, M. (1979). Mites in house dust in the Stockholm area. *Allergy, 34*(1), 11-18.

Vervolet, D., Penaud, A., Razzouk, H., Senft, M., Arnaud, A., Boutin, C., & Charpin, J. (1982). Altitude and house dust mites. *Journal of Allergy and Clinical Immunology, 69*(3), 290-296.

Doula Use During Childbirth

Tia Reed

Abstract

Continuous labor support, provided by doulas, has been shown to provide many beneficial and positive aspects to the childbirth process (Klaus & Kennell, 1993). The use of a doula has been shown to reduce cesarean section rate, the use of epidural anesthesia, forcep use, and oxytocin use. Doulas also decrease the length of labor. Doulas accomplish this task by using a variety of different techniques to help the mother control the pain of contractions. Most importantly, a doula provides a positive birth experience for the laboring mother. The purpose of this article is to inform and educate health educators on the significance of doula use. The information was obtained through professional literature as well as personal communications with both practicing doulas and obstetric nurses. Unfortunately, many Americans are unaware that doulas exist. Implications for health educators are discussed.

Introduction

Doula is a Greek word meaning a woman servant. In ancient times, the doula was usually the most important servant in the household, and was in charge of all family childbirths. Today a doula can be defined as Aa woman trained and experienced in childbirth who provides continuous physical, emotional, and informational support to the mother before, during, and just after childbirth (Klaus, Kennell, & Klaus, 1993, p.10). Basically, a doula is hired to accompany expectant parents into the delivery room and to assist them through labor and birth. Obstetric nurses are a very valuable component to the childbirth process but often times are very busy and unavailable at the crucial moments of labor. A doula stays with the parents the entire duration of the labor, and works with the nurse to provide an optimal environment for the laboring mother.

During the last several years, a childbirth movement has come into existence, prompting the opening of over 100 birth centers across the United States. Many good books have been written and videos have been produced which provide accurate and easy to understand information to expectant parents (Green, Coupland, & Kitzinger, 1990). Despite the new information of recent years, it is surprising how little childbirth has really changed. In fact, Arms (1994) found that, Awomen in the United States are more afraid of birth than ever before and with good cause: there are higher rates of cesareans, premature births, low-birth-rate babies, and infant mortality in this than in any other industrialized nation, and complications surrounding birth have risen steadily in the last few decades (p.5). These factors may provide a possible explanation as to why many women have begun to look for an experienced person to accompany them into the delivery room, in the hopes of having a satisfying birth experience. Green and colleagues, (1990), found that what women want most during the birth experience is fulfillment, satisfaction, emotional well-being, and a healthy baby. Perez and Snedeker (1990) showed that professional labor support persons, such as doulas, are trained to help the expectant parents meet their expectations, and to help them have a satisfying birth experience.

Obstetric Nurses: Duties During Labor

Obstetric nurses play a crucial role during the labor and delivery of a child, but the role is medical rather than supportive. McNiven, Hodnett, and O' Brien-Palles (1992) stated that the nursing work in the labor and delivery unit contained only a small amount of supportive care (p. 6). This is understandable due to the number of medical tasks for which an obstetric nurse is responsible, (e.g. vaginal exams, taking vital signs, collecting samples for laboratory tests, and preparing the birthing room for delivery) (Andolesk, 1990). Supportive care during labor has been shown to have several positive benefits. Supportive care during labor reduces cesarean section rates, operative vaginal births, episiotomies, and admissions to neonatal intensive care units, decreases use of oxytocin, analgesia, and anesthesia, improves Apgar scores, promotes longer breastfeeding duration, and gives the mother a greater sense of control during labor (Gagnon & Waghorn, 1996).

In addition to the aforementioned procedures, Arms (1994) reports that nurses are also responsible for administering electronic fetal monitoring, IVs, and artificial hormones for labor stimulation. They also must regulate epidural anesethesia and other pain reducing drugs. These are used routinely in hospital childbirths despite the fact that they alter labor and risk harming the mother or baby. Monitoring devices and drugs are used because they permit hospitals to staff the unit with fewer nurses. This makes the nurses that are available very busy, and therefore, more concerned with medical rather than supportive roles. The responsibility of

these medical procedures indicates that nurses have limited time to provide the necessary informed emotional support a laboring woman needs. A doula provides this support.

The women who cannot afford or do not know about professional labor support persons (or "doulas") are at a distinct disadvantage. The support women receive from obstetric nurses may not be enough to protect them from the risks of childbirth, and they are more likely to suffer problems due to lack of support during labor (Perez & Snedeker, 1990). Kennell, Klaus, McGrath, Robertson, and Hinkley (1991) found that the most dangerous type of birth outcome, the cesarean section, is more likely to occur without adequate support. Unfortunately, this results in the need of other medical interventions, such as epidural anesthesia and admittance of the newborn to the neonatal intensive care unit. Radin, Harmon, and Hanson (1993) found that patients who are supported by their nurses have a much lower cesarean rate than those patients that do not receive support from their nurses.

Another obstacle that prevents women from getting adequate support is that some nurses tend to think that doulas do not have the necessary training to be of assistance. Perez and Snedeker (1990) interviewed a number of doulas who told them Athe nurses will not involve us in any decisions despite our efforts to be helpful. They feel that since we are non-nurses we are not qualified to be there (p. 59).

Doulas: Duties During Labor

There are no recognized schools that certify doulas. Doulas receive their training from licensed doula trainers. The doula trainers receive their doula certifications through doula organizations such as Doulas of North America (DONA),Association of Labor Assistants and Childbirth Educators (ALACE) and International Childbirth Education Association (ICEA).

Klaus and colleagues, (1993) described an extensive and expensive certification process for doulas. Courses include discussions and introductions to the basic physiological, psychological, and emotional changes during pregnancy, labor, delivery, and the early postpartum period, experimental exercises in communication skills, and empathy training. They also learn ways to create comfort through touch and words, role-play common birth situations, and ways to empower women.

Only when a doula feels completely competent in all of these areas does she begin to help couples in the delivery process, doing three main things for the couple. The three main components of the doula's role consist of (1) personal qualities of kindness, patience, commitment, and interest in the birth process, (2) the practical hands on skills of labor support and care, and (3) the ability and willingness to advocate for the woman in a maternity care system that is sometimes unresponsive and rigid (Perez & Snedeker, 1990).

Doulas provide many beneficial aspects during the delivery process. They focus on the laboring woman throughout each contraction, softly speaking words of reassurance and encouragement, stroking her, holding her hand, walking with her, suggesting position changes, instructing her, and instructing and reassuring her partner (Simpkin, 1995, p. 169). These simple gestures reduce the need for epidural anesthesia, cesareans, forceps, and other medical interventions (Kennell et al., 1991). Another advantage that constant support provides is a shorter duration of labor. Pascoe (1993) provided evidence that adequate support, provided by a doula, decreases the amount of time a woman is in labor.

Techniques Doulas Use to Enhance Labor

Doulas use a variety of techniques to ease pain and to help the mother have a satisfying birth experience. Some of these techniques include perineal massage, water therapy, general body massage, and changing positions to both help and encourage the mother.

Doulas are strong advocators of perineal massage. Perineal massage is the stretching and massaging of the birth canal (vagina) prior to birth to avoid tearing during birth or an episiotomy. An episiotomy is an incision made to enlarge the birth canal to promote the delivery of the baby's head. Stitches are required if an episiotomy is performed, prolonging the healing process (Andolesk, 1990). An episiotomy is usually not needed if the birth canal is properly stretched before labor begins. Doulas instruct couples how to perform perineal massage and when to begin the massage. The perineal massage usually begins 4-6 weeks before the expected delivery. The father usually performs the perineal massage on the mother in a relaxed and comfortable setting (K. A. Wright, personal communication, June 1999). Avery and Van Arsdale (1987) found that there is a significant reduction of episiotomies in the group of women who practiced perineal massage, when compared to control groups. If an episiotomy is not administered, the labor may take longer, but Apgar scores indicate that any additional time required to deliver over an intact perineum is not harmful to the newborn. They also mention that the time it takes to deliver over an intact perineum with a doula present is still shorter than a labor at which a doula is not present.

Another important technique that doulas use to promote a satisfying birth experience is water therapy. Doulas may encourage the mother to labor in the shower with warm or cool water running over her abdomen. The water helps the muscles relax which lessens the pain of contractions. Houston and Valentine (1998), found significantly fewer pharmacologic pain relief measures (narcotics and epidurals) are needed by women who spend time laboring in the shower. A doula may also suggest sitting in a tub of water to ease the pain of contractions because the buoyancy of immersion provides relief from contractions (Klaus et al, 1993). Reid (1994) investigated the safety of using water during labor and delivery and found it to be relatively safe, with a normal labor and delivery.

Doulas also provide continuous support through the use of massage to the mother. The massage can take many forms, including back, hands, feet, or face. The massage often changes from soft to firm. Touch provides numerous positive effects. Birch (1986) found that touch appears to be an important source of support for women during the labor experience. Touch facilitates the care-giver's ability to be closer to the woman in labor and, therefore, better able to understand her needs and offer solutions to meet those needs. Houston and Valentine (1998) agreed, stating that women who have received the therapeutic touch treatments, report that it helps in coping with labor pain through relaxation (p. 11).

Doulas also frequently use position changes to quicken labor. Doulas suggest that the laboring mother change position every 30-40 minutes. This makes the contractions more painful but more effective. Most women want to find a comfortable position and stay there but doulas remind the mother of the benefits of position change and encourage them to move around as much as possible (P. A. Palladino, personal communication, July, 1999).

Implications for Health Educators

The positive evidence of doula support illustrates a need for education. The professional literature which deals with the topic of childbirth is just beginning to publish studies relating to doulas. The use of doulas provide a number of opportunities for a health educator. Health educators could conduct needs assessments of different communities and cultures to see who would most benefit from doulas. This would provide practicing doulas with valuable client information and would also benefit pregnant women in need of professional labor support. By providing important information to doulas and expectant women alike, women can make a decision about the use of a doula before she arrives in the delivery room. Health educators could provide the public with information about doulas and stress the benefits of support during labor. Lastly, health educators can serve as resource persons to other professionals. By specifically educating physicians, nurses, and other labor room personnel, women may find it easier to access a doula when one is needed.

Summary

The review of literature showed a need for professional labor support. Through no fault of their own, obstetric nurses have many other responsibilities and are often unable to provide adequate support to laboring women. Doulas can provide this support and allow the nurses to concentrate on the medical aspects of childbirth. Unfortunately, doulas are used infrequently due to the lack of knowledge. Through the use of health education, and more precisely, health educators, pregnant women can be educated about doulas, and how a doula can help provide a positive birth experience.

The positive aspects of doula use can be beneficial to the entire population. If the benefits of doula use are learned by the general population, childbirth will become a very positive endeavor, and health educators will be able to focus on the more deadly health concerns, thus securing a healthy future for Americans.

References

Andolesk, K. M. (1990). *Obstetric care: Standards of prenatal, intrapartum, and postpartum management.* Philadelphia, PA: Lea & Febiger.

Arms, S. (1994). *Immaculate deception II: A fresh look at child birth.* Berkeley, CA: Celestial Arts.

Avery, M. D., & Van Arsdale, L. (1987). Perineal massage: Effect on the incidence of episiotomy and laceration in a nulliparous population. *Journal of Nurse-Midwifery, 32,* 181-184.

Birch, E. R. (1986). The experience of touch received during labor: Postpartum perceptions of therapeutic value. *Journal of Nurse-Midwifery, 31,* 270-276.

Gagnon, A. J., & Waghorn, K. (1996). Supportive care by maternity nurses: A work sampling study in an intrapartum unit. *Birth, 23,* 1-6.

Green, J. M., Coupland, V. A., & Kitzinger, J. V. (1990). Expectations, experiences, and psychological outcomes of childbirth: A prospective study of 825 women. *Birth, 17,* 15-24.

Houston, R. F., & Valentine, W. A. (1998). Complementary and alternative therapies in perinatal populations: A selected review of the current literature. *Journal of Perinatal and Neonatal Nursing, 12,* 1-15.

Kennell, J., Klaus, M., McGrath, S., Robertson, S., & Hinkley, C. (1991). Continuous emotional support during labor in a US hospital: A randomized controlled trial. *Journal of the American Medical Association, 265,* 2197-2201.

Klaus, M. H., Kennell, J. H., & Klaus, P. H. (1993). *Mothering the mother: How a doula can help you have a shorter, easier, and healthier birth.* Reading, MA: Addison-Wesley Publishing Company.

McNiven, P., Hodnett, E., & O'Brien-Palles, L. L. (1992). Supporting women in labor: A work sampling study of the activities of labor and delivery nurses. *Birth, 19,* 3-7.

Pascoe, J. M. (1993). Social support during labor and duration of labor: A community based study. *Public Health Nursing, 10,* 97-99.

Perez, P., & Snedeker, S. (1990). *Special women: The role of the professional labor assistant.* Seattle, WA: Pennypress, INC.

Radin, T. G., Harmon, J. S., & Hanson, D. A. (1993). Nurses care during labor: Its effect on the cesarean birth rate of healthy nulliparous women. *Birth, 20,* 14-20.

Reid, T. (1994). Water work. *Nursing Times, 90,* 26-32.

Simpkin, P. (1995). Reducing pain and enhancing progress in labor: A guide to nonpharmacologic methods for maternity caregivers. *Birth, 22,* 161-173.

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Prescription Drug Misuse in Older Adults and Strategies for Prevention

Jessica A. Schulman

Abstract

Prescription drugs have been described as the single most important health care technology in preventing illness, disability, and mortality among older Americans. However, medication has been noted to cause serious harm. If adverse drug reactions were classified as a disease, together they would rank as the fifth leading cause of death in the U.S. (Alliance for Aging Research [AAR], 1998). Until recently, there has been scant research on use of prescription drugs by older Americans and their resulting health outcomes (Rosenberg, 1995; Avorn 1995). Health professionals should be cognizant of risk factors that lead to drug misuse, and should attempt to identify and implement methods of prevention. This article reviews new findings and describes problems with opiate narcotic misuse, but presents guidelines for proper use of common prescription drugs. The following topics will be addressed: (1) demography of older Americans, (2) epidemiology of drug misuse, (3) drug misuse and dependence, (4) gender issues, (5) physical effects, and (6) strategies for prevention.

Background

Prescription drugs are described as the single most important health care technology in preventing illness, disability, and death among the geriatric population (Avorn, 1995). People over 60 years of age are twice as likely to experience chronic pain from diseases, such as osteoarthritis, than their younger counterparts (National Council on Aging [NCOA], 1997). In addition, older adults are more likely to suffer from physical impairment (e.g. gastrointestinal dysfunction), and social losses (e.g., the death of a loved one). Pharmacologic agents can be a cost-effective alternative for surgeries and can improve health and independence (Alliance for Aging Research [AAR], 1998). For these reasons, older people are the greatest consumers of prescription drugs; however this comes with the risk of drug misuse. A special report by the Alliance for Aging Research, stated, "If adverse reactions to medications were classified as a distinct disease, it would rank as the fifth leading cause of death in the U.S." (AAR, 1998, p. 1). Though prescription drug dependence has been linked to drug abuse in older adults, research on drug abuse patterns among elderly is unclear since it has been considered a domain of the young (Rosenberg, 1995). Studies of illicit drug abuse and addiction in the older Americans were almost nonexistent until 1990 (Rosenberg, 1995). In addition, there has been scant research on the use of prescription drugs by older people and their clinical outcomes (Avorn, 1995).

Drug Misuse in Older Adults

Current research provides preliminary insight on prescription drug abuse, otherwise known as drug misuse (Table 1), among older Americans and strategies for prevention. This paper reviews new findings describes problems with opiate narcotic misuse, and emphasizes proper use of common prescription drugs. The following topics are addressed: (1) demography of the older Americans, (2) epidemiology of drug misuse, (3) factors that contribute to drug misuse and dependence, (4) gender issues, (5) physical effects on older adults, and (6) strategies for prevention.

Demography and Epidemiology

The changing composition of the population will have a significant impact on health care delivery and professional practice. Persons 65 years or older numbered 33.9 million in 1996 and by 2030 this number will double to 70 million older persons (Administration on Aging [AOA], 1997). With the older population growing rapidly and life expectancy increasing, drug misuse is expected to become a more extensive public health problem. New studies may uncover an even larger problem than once believed because cases of drug use among elderly have been under-represented or underdiagnosed (AAR, 1998; Szwabo, 1993).

It is difficult to quantify the frequency, intensity, or amount of pain that older people experience. However, researchers were able to determine that 25% to 50% of older people living in community dwellings (i.e., a traditional home setting versus a skilled nursing facility) suffer with physical pain (Ferrell & Ferrell, 1991). As a result, an estimated 71% of older Americans take prescription pain medication for their conditions (NCOA, 1997). Of those people over 60 years of age who take pain medication, 22% use a form of opioid (NCOA, 1997). Because a significant proportion of older persons use opiate derived medications, it has been suggested

that they are more likely to experience prescription drug dependence. A study of medication dependence in 100 senior inpatients showed that 49 were dependent on opioid derived analgesics (Finlayson & Davis, 1994). As the elder population grows, pain management with prescription drugs will become a vital area of medical practice.

Prescription Drug Use and Dependence

In comparison to younger patients with addiction, older patients who experience drug dependence have different behaviors and symptoms. Researchers found that older adults use fewer illicit drugs and fewer classes of drugs, mostly medicating with benzodiazepines and opioids (Juergens, 1994). When prescription drugs are misused, psychological and physiological dependence can occur. For the purpose of this article, medications that are administered on a regular basis without the user following instructions will be considered drug misuse. However, the lines between drug misuse and abuse fade when physicians prescribe medications for inappropriate reasons, or they are not held accountable for allowing drug addiction to occur. Thus, a more comprehensive view of drug misuse is provided in Table 1.

dents, exacerbation of depression and anxiety, and physical dependence with uncomfortable withdrawal symptoms. Because these symptoms may be subtle, addiction can be overlooked or attributed to other causes such as depression (Juergens, 1994). In addition, Juergens (1994) suggested that physicians do not have adequate training when prescribing drugs to older clients. In a recent study, 37% of patients reported that their physicians did not discuss possible side effects of the drugs when they were first recommended and 48% said that their physicians did not alert them to any drug interactions (NCOA, 1997). Juergens (1994) offers specific considerations for administration of potentially addictive prescription drugs in the older adults (Table 2).

Factors that Contribute to Drug Misuse: An Example with Opiate Derived Medications

Problems of both inappropriate analgesic treatment and lack of skill regarding diagnosis of drug misuse are compounded by patient issues. Patients may not administer their drugs properly due to limited education, misunderstandings about proper dosages, and fear of addiction (Ferrell & Ferrell, 1991). In addition, caregivers have anxieties and concerns

Table 1.

Classification of Drug Misuse & Medication-Related Problems		
Problem	**Description**	**Example**
Untreated Indication	Person with problem that requires drug therapy but is not receiving medication for that indication	Person with diabetes who needs intravenous insulin but only receives dietary instructions
Improper Drug Selection	Person has medical problem that requires drug therapy but is taking the wrong medication	Person develops gastric ulcers due to bacteria (i.e., H. Pylori) but takes antacids versus antibiotics
Subtherapeutic Dosage	Person has medical problem that is being treated with an inadequate dose of the correct medication	Person has intractable pain due to hip surgery but is not given an adequate dose of morphine
Failure to Receive Drugs	Person has a medical problem that is the result of not receiving a drug (e.g., for psychological, economic, and other reasons)	Person develops seizures as a result of not receiving his or her medication, such as phenytoin
Overdosage	Patient has medical problem that is being treated with too much of the correct drug	Person with diabetes takes too much blood thinner for a blood clot and develops a bleeding disorder
Adverse Drug Reaction	Patient has medical problem that is the result of an unintended and detrimental adverse drug effect	Person takes an antibiotic, such as gentamicin sulfate, and develops kidney failure
Drug Interaction	Patient has medical problem that is the result of a drug-drug or drug-food interaction	Person takes grapefruit juice with their blood pressure medication and their blood pressure drops suddenly

Source: (Helpler & Strand, 1990) and (AAR, 1998)

Negative consequences of prescription drug abuse include memory problems, psychomotor impairment, falls or accidents that challenge their ability to monitor changes in the patient's behavior or mood. Obstacles that hinder caregivers from

Table 2

Considerations for use of Potentially Addictive Prescription Drugs in Older Adults.
Do the diagnosis, distress, and disability warrant use of this drug?
Have appropriate non-pharmacologic therapies been tried first?
Have pharmacologic agents with less potential for long-term harm and dependence been attempted?
Is the drug causing an acceptable therapeutic response? If not, have the diagn osis and treatment been reconsidered?
Has the patient had other drug or alcohol dependence problems in the past?
Do any physical or behavioral signs or impairment suggest addiction to the prescribed drug?
Can a family member or caregiver confirm the effectiveness of the drug as well as the absence of impairment and addiction?
Would decreasing the dose of the drug help determine if problems are related to the drug or if further treatment is needed?

Source: (Juergens, 1994)

administering drugs correctly include: (1) demands on time, (2) distressing symptoms of the patient, (3) emotional adjustment, and (4) adaptations in sleep, work, and close relationships (Ferrell & Ferrell, 1991). Another challenge is that clinicians may withhold sensible pain treatment because of biases, fear, or unfamiliarity with analgesic treatment. Health professionals may not have adequate knowledge about methods for assessing pain, or they may not be able to differentiate between tolerance, physical dependence and addiction (Dahl, 1996). Moreover, there is a lack of accountability for both appropriate pain management and judicious treatment of depressed persons who experience chronic pain.

Psychosocial Factors

When opiate derived analgesic agents and other medications are prescribed and taken properly, they can reduce pain and enhance the lives of older adults. However, when drugs are misused, both psychological and social influences reinforce drug dependence and misuse. Patient reluctance to use and learn about opiate derived agents for pain may have been influenced by political and social pressure against illicit drug use (Ferrell & Ferrell, 1991). Additionally, there may be a relationship between late-life coping and substance-related disorders. Cases of misuse that start later in life might be attributed to an individual's inability to cope with various life stresses, such as retirement from a job, loss of a spouse, decreased physical vitality, or illness (Finlayson, 1995).

It is important to understand how roles of social support, social control, and coping differ between people using alcohol or illicit drugs, versus those using prescription drugs (Finlayson, 1995). For example, an older person who complains of insomnia, chronic pain, or fatigue and seeks medication for these complaints is more likely to be enabled to become dependent on medication. In contrast, an older person who has the obvious stigmata of alcoholism is less likely to be enabled to become alcohol dependent. The culture and social environment surrounding older persons that misuse prescription analgesics often involve hypochondriasis, insomnia, depression, and strong support rather than resistance and rejection that accompanies alcohol abuse (Finlayson, 1995). Moreover, the (mis)belief that mental disorders, rather than cognitive impairment, occur more frequently with aging contributes to misdiagnosis of depression in older persons. This can lead to a physician inappropriately prescribing benzodiazepines rather than ordering needed antidepressants (Finlayson, 1995). Finlayson suggests that, "physicians take responsibility for how their behavior enables the lifestyles of their patients and that physician and patient share responsibility for the patient's proper use of prescription drugs (Finlayson, 1995, p. 1876).

Physical Factors & Side Effects

Although most studies do not focus on older adults only, it is estimated that fatal adverse drug reactions (ADRs), or any noxious, unintended, and undesired effect of a drug on a human (Lazarou, Pomeranz, & Corey, 1998), are a serious problem. Inappropriate use of prescription and over-the-counter medicine killed more than 106,000 and caused ADRs in 2.2 million patients in 1996 (Lazarou et al., 1998). It is noteworthy that older people have unique vulnerabilities (e.g., poly-pharmacy and biologic changes) to medication-related problems and, as a result, carry a disproportionate burden of ADRs (AAR, 1998; General Accounting Office, 1996). As people age there is a progressive decline in central nervous system activity, loss of neurons, changes in receptor sensitivity, among others. For example, geriatric patients can be more sensitive to opiate narcotics, manifesting as prolonged duration of action and exaggerated reductions in blood pressure. For any given weight-adjusted dose of a narcotic, an older person will experience a more pronounced pharmacologic effect than a younger person. A dose of morphine in an older patient may be half that of a younger patient, yet the older patient will have higher plasma levels of the drug (Ozdemir, Fourie, Busto, & Naranjo, 1996). In

addition, kidney and liver metabolism decreases with age, thereby limiting drug binding, transport, and effectiveness of some drugs (Ozdemir et al., 1996). In contrast, decreased clearance of drugs, such as benzodiazepines, coupled with increased sensitivity to some drugs, can expose older persons to excessive amounts of medication (Finlayson, 1995).

A report by the U.S. Department of Health and Human Services (DHHS) determined that one-fifth of older patients are given medications that experts consider to be unsuitable due to risk of ADRs (AAR, 1998). Even when drugs are used appropriately, older persons have a greater potential for complications. For example, non-steroidal anti-inflammatory drugs (NSAIDS) are known to cause fatal peptic ulcers more frequently in older than in younger populations (Egbert, 1996). In addition, relatively innocuous antacids may become toxic due to decreased gastric motility of older persons who use opiate drugs (Dahl, 1996). As a result, ADRs occur in 21% of 70 to 79-year-olds compared with 3% of 20 to 29-year-olds (Szwabo, 1993).

Gender and Risk Factors for Drug Misuse

Gender is a contributing risk factor for drug misuse (Finlayson, 1995). Older women are more likely than men to use medical services and to receive prescriptions for psychoactive drugs (Cafferata, Kasper, & Bernstein, 1983; Finlayson, 1995). In addition, older women may experience psychological, social, and financial difficulties that exacerbate drug problems. This is perpetuated by the media which presents negative and impaired images of women as ill, frail, depressed, and postmenopausal (Szwabo, 1993).

In a comprehensive analysis of substance abuse, 400 physicians were surveyed by the National Center on Addiction and Substance Abuse (CASA, 1998). Major medications that caused problems for women were psychoactive drugs, taken for anxiety or mood disorder, or analgesics, taken for pain relief (CASA, 1998). Older women are exposed to a series of losses and misfortunes that contribute to drug misuse (Szwabo, 1993). This disparity is related to the tendency for women to outlive their partners, 16% of males and 42% of females were living alone in 1990 (AOA, 1997). Moreover, after a spouse dies a woman may have only a house as an asset, which she may have to give up. The following factors can predispose women to drug misuse and dependence: (1) social isolation, (2) dissatisfaction with relationships, (3) physical or emotional illness, (4) minority status, (5) use of psychoactive drugs or self-medication, or (6) a lack of financial resources for quality treatment (Szwabo, 1993). When appropriately prescribed and used, drugs can offer benefits to older women suffering with medical problems. However, medications are not always ordered by physicians judiciously and may not be used by patients properly.

Strategies for Prevention

Steps can be taken to reduce drug misuse among elderly because most medication-related problems are predictable and thus preventable (AAR, 1998). In an executive report by the Alliance for Aging Research (AAR), it was suggested that the rate of drug misuse can be reduced through: (1) increased provider, patient, and care-giver education, (2) better knowledge about appropriate medication use in geriatric populations, (3) strategies to identify persons at risk for medication-related problems, and (4) improvements in medication tracking systems (AAR, 1998).

Prevention of Drug Misuse Among Older Family Members

Education and social support are key elements when dealing with family members. Drug misuse can frighten family members and cause them to act unreasonably. Therefore, an examination of family dynamics is a critical component of identifying potential drug misuse and providing effective drug therapy. For example, a practitioner may notice that "scapegoating" is being used to blame one family member for all of the family's problems. Families also may appear to be powerless and respond by either cutting off the user from contact or, in contrast, protecting and justifying an abuser's behavior (Szwabo, 1993). For these reasons, prevention strategies must address the appropriate use of medication as well as educate the misuser, and their friends, family, caregivers, and even the physician about the warning signs of drug misuse.

Signs of addiction in elderly women may include concerns about anxiety, nervousness, memory impairment, falls, weight loss, and others (Szwabo, 1993). Psychological symptoms often present as denial, minimization, rationalization, enabling, and blaming. The drug misuser may claim that, "the doctor prescribed it to me" and avoid further conversation (Szwabo, 1993). Unwittingly, the behavior of family members can enable the patient to misuse prescription drugs. A family member may say, "My mother needs that drug to sleep," and family involvement in obtaining extra medication(s) may occur (Szwabo, 1993). In turn, family education, drug management training of practitioners, and development of psychological health programs to counsel older adults and caregivers is essential. Interpersonal issues, such as a family member who expresses nagging doubts about the cause of an older person's possible drug addiction, should be taken seriously. For example, practitioners should take note of caregivers that ask questions such as, "Are the drugs causing her to act this way?" or "Grandmother is almost 70, can we expect her to remember these things?" (Finlayson, 1995).

General Strategies for Prevention and Implications for Health Educators

It is important that health professionals also are able to screen for problems—such as chronic pain, depression, and other potential gateway disorders—which are associated with drug misuse. Part of the identification process involves understanding categories of medication-related problems (Table 1). One

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way to provide the right medication, in the right amount, administered in the right way, to the right person, is to properly monitor the patient's disease state. Proper pain management with medication, for example, can be achieved if pain is assessed regularly and appropriately. Three established pain assessment techniques include: (1) word descriptor scales and visual analog scales which quantify pain intensity, (2) pain journals to establish and monitor qualitative aspects of the condition (Ferrell & Ferrell, 1991), and (3) pain inventories (Egbert, 1996).

The Center for Substance Abuse Prevention (CSAP) presents a method that enables older adults to become their own advocates of appropriate drug use (DHHS, 1994). The focus on improving knowledge and promoting behavioral control is expected to decrease medication misuse, thus reducing physical injury and emotional impairment. CSAP researchers suggest that patients and caregivers are encouraged to ask particular questions to gather information about their prescription(s) (Table 3). Practitioners should ask patients the name of each medication they take at home and for what purpose. Health educators can provide a prepared list of questions for patients to use when recording key information about their prescriptions. This enables clinicians to assess the patient's level of understanding about the drug regimen, and it relieves concern about consuming too much of a physician's time.

might be needed if several different pills are prescribed. Health educators can apply these methods in a variety of settings.

Community and public health educators can help implement, evaluate, and provide links to services that are established in the community. Educators employed by voluntary health agencies can assist concerned citizens by examining prescription drug problems not adequately addressed by governmental agencies. In addition, they can participate in drug surveillance by enabling individuals to report adverse drug reactions and working with departments of public health to coordinate monitoring systems and outcomes research. Health educators also can work with granting agencies and private donors to establish effective drug prevention and advocacy programs. Educators with clinical expertise may provide information regarding the possible side effects, expected benefits, and affordability of particular medications to policy makers and the public. *On-site programs* allow health educators to reach segments of the population that were not easily accessible in the past (Cottrell, Girvan, & McKenzie, 1999). Educational and organizational activities that involve screening programs, support groups, counseling hotlines, consumer awareness and drug prevention programs can be developed and applied by health educators.

Health educators in *clinical settings* can advocate for

Table 3

Prepared Questions to ask Clinicians Regarding Prescription Drugs

Question	Drug A	Drug B
What is the name of the drug?		
Why am I taking it? What's it for?		
How often should I take it?		
How long must I take it?		
Will there be side effects? What are they?		
Are there any side effects I should report to the doctor immediately?		
Is there anything special I should know about in taking this drug? (For example, take the meals; other drugs I shouldn't take with it; driving restrictions.)		

Source: (DHHS, 1994)

Keeping track of multiple medications or forgetting whether or not a drug has been taken are problems for elderly (DHHS, 1994). CSAP offers charts and systems to assist older adults with taking medication wisely. When using a variety of prescription drugs, health professionals suggest the patient or caregiver document specific information (Table 3). The "Weekly Directions and Check-off Chart" (DHHS, 1994), is another paper and pencil method that enables older individuals to be more accountable for prescriptions used (Table 4). This chart is useful for keeping track of *when* the medication should be taken and whether or not it *was taken*. Moreover, a daily container system, such as an empty egg carton,

screening and monitoring programs. For example, a "Drug Regimen Review" can be established at any hospital or nursing facility. A simple checklist enables practitioners to detect medication usage that varies from accepted therapy standards established for a given condition. As a result, patients can benefit from improved pharmaceutical care. Traits to be monitored are excessive doses or duration, duplicate therapy, and inadequate indications for use. General observations should involve the total number of medication orders for a patient, contraindications, drug-drug or drug-nutrient interactions, administration methods, and a medication class review to determine if hypnotics, antipsychotics or antidepressants are used appropriately. Moreover, health educators have new op-

portunities to educate physicians, nurses, and the public, about preventing prescription drug misuse and improving medical outcomes.

Table 4

Keeping track of a medication regimen							
Name/Directions	**Sunday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
Drug A—3 times a day	*8 12 5*	*8 12 5*	*8 12 5*	*8 12 5*	*8 12 5*	*8 12 5*	*8 12 5*
Drug B—1 a day in AM	*8*	*8*	*8*	*8*	*8*	*8*	*8*

Source: (DHHS, 1994)

Conclusion

Though prescription drugs have potential to improve quality of life, when used inappropriately they can cause serious harm to the older adults. This issue will continue to gain importance as the American population ages (AAR, 1998). It is important for health educators and practitioners to understand that ADRs represent a serious health issue (Lazarou et al., 1998). The financial burden of drug misuse is substantial, with $4 billion spent on medication-related problems in nursing facility residents annually (AAR, 1998). Health professionals should be cognizant of risk factors that lead to drug misuse among older citizens, and attempt to identify and apply methods to prevent this problem. Further research should examine behavioral methods for improving practitioners' competence regarding administration and monitoring of analgesic drug use. In addition, innovative psychosocial approaches to prevent drug misuse, particularly among elderly women, should be developed and applied.

To this end, it will be important to know whether preventable medication-related problems occur because of inadequate initial testing, a breakdown in post-market surveillance, physician prescribing errors, or a lack of patient adherence (AAR, 1998). This information is not collected, analyzed, or published on a regular basis by the Division of Phamacovigilance and Epidemiology or any other office at the Food and Drug Administration (Moore, Psaty, & Furberg, 1998). In the future, health educators can promote and implement safety monitoring programs to assure that new warnings or recommended restrictions are effectively communicated to practitioners and older citizens (Moore et al., 1998). In addition, there needs to be an organized program to check whether the most important warning messages are being heeded, and post-marketing surveillance that focuses on drug-induced medical problems rather than specific drugs alone (Moore et al., 1998), or user factors. Health educators are qualified to study drug misuse in special populations, address preventive strategies for this emerging problem, develop surveillance programs, and promote optimal therapeutic outcomes (Bootman, Harrison, & Cox, 1997).

References

Administration on Aging. (1997). Projections of the population, by age and sex: 1995 to 2050 [On-line]. Available: http://www.aoa.dhhs.gov/aoa/stats/aging21/table1.html.

Alliance for Aging Research. (1998). *When medicine hurts instead of helps: Preventing medication problems in older adults*. Washington, D.C.

Avorn, J. (1995). Medication use and the elderly: Current Status and Opportunities. *Health Affairs, Spring*, 278-286.

Bootman, J. L., Harrison, L. D. L., & Cox, E. (1997). The health care cost of drug-related morbidity and mortality in nursing facilities. *Archives of Internal Medicine, 157*, 2089-2096.

Cafferata, G. L., Kasper, J., Bernstein, A. (1983). Family roles, structure, and stressors in relation to sex differences in obtaining psychotropic drugs. *Journal of Health and Social Behavior, 24*, 132-134.

Cottrell, R. R., Girvan, J. T., & McKenzie, J. F. (1999). *Principles and foundations of health promotion and education*. Boston: Allyn and Bacon.

Dahl, J. L. (1996). Effective pain management in terminal care. *Clinical Geriatric Medicine, 12*, 279-300.

Egbert, A. M. (1996). Postoperative pain management in the frail elderly. *Clinical Geriatric Medicine, 12*, 583-99.

Ferrell, B. A., & Ferrell, B. R. (1991). Pain management at home. *Clinical Geriatric Medicine, 7*, 765-76.

Finlayson, R. E. (1995). Misuse of prescription drugs. *International Journal of Addiction, 30*, 13-14.

Finlayson, R. E., & Davis, L. J., Jr. (1994). Prescription drug dependence in the elderly population: Demographic and clinical features of 100 inpatients. *Mayo Clinic Proceedings, 69*, 1137-45.

General Accounting Office. (1996). *Prescription drugs and the elderly: Many still receive potentially harmful drugs despite recent* improvements. (Publication No. GAO/HEHS-95-152). Washington, DC: U.S. Government Printing Office.

Hepler C. & Strand, L. (1990). Opportunities and responsibilities in pharmaceutical care. *American Journal of Hospital Pharmacy, 47*, 533-543.

Juergens, S. M. (1994). Prescription drug dependence among elderly persons. *Mayo Clinic Proceedings, 69*, 1215-1217.

Lazarou, J., Pomeranz, B., & Corey, P. (1998). Incidence of adverse drug reactions in hospitalized patients: A meta-analysis of prospective studies. *Journal of the American Medical Association, 279*, 1200-1205.

Moore, T. J., Psaty, B. M., & Furberg, C. D. (1998). Time to act on drug safety. *Journal of the American Medical Association, 279*, 1571-1573.

National Center on Addiction and Substance Abuse. (1998). Under the rug: Substance abuse and the mature woman[On-line].Available:http://www.casacolumbia.org/publications1456/publications_show.htm?doc_id5882.

National Council on Aging. (1997). Older Americans and pain: Executive summary [On-line]. Available: http://www.ncoa.org/sr_info/health/pain/exesum.htm, 1-10.

Ozdemir, V., Fourie, J., Busto, U., & Naranjo, C. A. (1996). Pharmacokinetic changes in the elderly: Do they contribute to drug abuse and dependence? *Clinical Pharmacokinetics, 31*, 372-385.

Rosenberg, H. (1995). The elderly and the use of illicit drugs: Sociological and epidemiological considerations. *International Journal of Addiction, 30*, 1925-1951.

Szwabo, P. A. (1993). Substance abuse in older women. *Clinical Geriatric Medicine, 9*, 197-208.

U.S. Department of Health and Human Services. (1994). *Using your medicines wisely: A guide for the elderly* [Brochure]. Substance Abuse and Mental Health Services Administration: Author.

The Role of Pharmacists In Reducing Tobacco and Alcohol Use

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Abstract

Pharmacists can demonstrate their contributions to primary and preventive care, both immediate and potential (Thompson, 1994) by becoming involved in efforts to meet tobacco and alcohol related national health goals. Pharmacists are aware of the increasing evidence that smoking and alcohol can reduce the effectiveness of medication for their clients. One major contributor to medication-related morbidity and mortality is the adverse drug reactions or interactions from taking medications while smoking or using alcohol (American Association of Colleges of Pharmacy, 1994). Through a review of the literature this article investigates, ownership of the pharmacy is a major factor of in the sales of alcohol and tobacco. Recommendations for health education are discussed.

Introduction

Pharmacists play an important role in the delivery of health products and services. One responsibility of pharmacists is to aid individuals in selection of medications that are safe and effective. Along with the delivery of medications, pharmacists also provide important information about possible side effects of medications, as well as the interaction of medication with other foods and chemicals. An important concern is the effect alcohol and tobacco products have on the effectiveness of medications.

An estimated 47 million adults (24.7%) in the United States smoke cigarettes, even though this behavior will result in chronic morbidity and premature death for one out of every two regular users (CDC, 1998). The Centers for Disease Control and Prevention estimate that overall mortality due to the direct effects of cigarette smoking totals about 419,000 deaths per year (CDC, 1998).

Paralleling this enormous health burden is the economic burden of tobacco use: more than $50 billion in medical expenditures and another $50 billion in indirect costs (CDC, 1998).

Another major drug threat to the public's health is improper use, overuse and abuse of alcohol (U.S. Department of Health and Human Services, 1990). Excessive and inappropriate alcohol consumption causes more than 100,000 deaths annually in the United States. Improper use of alcohol is one of the major factors related to violent deaths such as accidents, homicide and suicides. It is also an important contributor to a group of chronic ailments such as alcoholic cirrhosis of the liver and alcohol dependence syndrome. The annual medical costs related to all alcohol related problems are more than 50 billion dollars (CDC, 1998).

Pharmacists are aware of the increasing evidence that smoking and alcohol use can reduce the effectiveness of certain medications for their clients. It has been well documented that one major contributor to medication-related morbidity and mortality cost is the adverse drug reactions or interactions from taking medications while smoking cigarettes and using alcohol (Drug Interactions & Updates Quarterly, 1995). Yet, many pharmacies/drugstores continue to sell alcohol and cigarettes.

Pharmacists and the Sale of Alcohol and Tobacco

Pharmacists are in a position to Ahelp people avoid initiating the smoking habit or to quit smoking (CDC, 1993 p.6). Pharmacists can demonstrate their contributions to primary and preventive care, both immediate and potential (Thompson, 1994) by becoming involved in efforts to meet tobacco related national health goals. More specifically, pharmacists are well positioned to affect the availability and sale of tobacco products in pharmacies. However, little information is available concerning the prevalence of tobacco product sales in pharmacies at the national level.

A few studies have been conducted to evaluate the sale of tobacco products in pharmacies. A 1995 study conducted by the Massachusetts Pharmacists Association found that 30% of independent pharmacies sold cigarettes (Massachusetts Pharmaceutical Association, 1995). In Mississippi, a 1989 survey of retail pharmacies found the 68% sold cigarettes and 52% sold smokeless tobacco. Respondents expressed moderate agreement that it was a conflict of interest to sell tobacco products. This agreement was significantly higher among pharmacists working in stores, which did not sell cigarettes (Banahan, Juergens, & Jernigan, 1990).

A 1985 survey of Mississippi pharmacists found the most important cue urging pharmacies not to sell cigarettes was the pharmacist's assertion that such sales were contrary to his or her professional responsibility (Grapes, Smith, & Sharp, 1985). In a 1992 study, 62% of the pharmacists sur-

veyed responded that tobacco products should not be sold in pharmacies (Simonsen, 1995). A 1995 opinion poll revealed that 73% of pharmacists believed pharmacies should stop selling cigarettes (Conlan, 1995). Pharmacists employed by pharmacies that continue the sale of tobacco face increasing personal and professional conflicts, which may contribute to the removal of tobacco products from these settings. It is expected that more pharmacies will discontinue the sale of tobacco products due to the media's increased focus on the tobacco industry, the settlements concerning health care and other costs associated with tobacco use, and the implementation of statewide ,tobacco-free pharmacy campaigns (Project ASSIST, 1998).

Pharmacists and Health Education

There has been an increased interest in broadening the role of pharmacists beyond the customary product-oriented functions of dispensing and distributing medication to include an elevated role in public health education through the Pharmacy Practice Activity Classification Project (PPAC)(American Pharmaceutical Association [APA], 1998).

The PPAC identifies four major domains of pharmacist activities: (a) ensuring appropriate therapy outcomes, (b) dispensing medications and devices, (c) health promotion and disease prevention and (d) health systems management. Within the health promotion and disease prevention domain, a paramount purpose is to support the health service population in the planning and delivery of services to individuals for the purpose of disease prevention, early detection of disease, detection of risk factors and the promotion of healthy lifestyles. Specific activities include developing health education programming for individuals and assisting clients in making lifestyle changes to improve health outcomes. A major core activity in the 1994 pharmaceutical educational goals, addressed by the American Association of Colleges of Pharmacy, was to include education in health promotion and disease prevention for pharmacists (Carl & Trinca, 1995).

This recurring interest of pharmacists in fulfilling a public health role as health educators is considerable. Partially due to the impact of the reassessments of pharmacists activities and the changing role of today's health care system, pharmacists are increasingly interested in health promotion and disease prevention as a way to effectively position themselves for careers in the 21st century (APA, 1998; Maguire, 1990). Although evidence that people can do much to promote their own health is intensifying, the effect of the pharmacist in assisting their clientele is not well documented. However, there are a few systematic studies documenting participation in health education and disease prevention activities of this significant health care provider group (O'Loughlin & Masson, 1999; Scott & Wessels, 1997). More specifically, this group of recognized drug experts may be well-situated to take an active role in educating the public on the dangers of cigarettes and alcohol use because of the pharmacists accessibility and availability to the public (CDC, 1998). A person can call or stop by a pharmacy and speak to the pharmacists anytime during opening hours without an appointment. If a person tries to speak with their physician, it may take days for the physician to answer their questions or the person may have to set up an appointment with their physician.

Summary

It is apparent that pharmacists can and should be involved in health education and health promotion. This is consistent with the progressive trend that has emerged recognizing the importance of prevention and team effort by all health care providers, especially the pharmacists' PPAC. Pharmacists, as a member of this team, can make significant contributions toward health promotion and disease prevention in public health.

Those who are in the business of providing medical and health care, preventing diseases, and promoting the health of individual members of their communities should be concerned about selling products that contribute to preventable causes of disease and death (Weber, Reed, & Kroner, 1989). Pharmacists must continue to pursue practice environments that compliment their professional opinions and standards when it comes to enhancing the public's health.

References

American Pharmaceutical Association. *Pharmacist Practice Activity Classification 1.0.* [On-line] 1998. Available: http://aphanet.org/AphA/practiceclass.html.

Banahan, B. F., Juergens, J. P., & Jernigan T. M. (1990). Tobacco and alcohol products: The conflict between being a health provider and merchandise retailer in Mississippi pharmacies. *Mississippi Pharmaceutical, 16*, 17-20.

Carl, T., & Trinca, J. (1995). The pharmacists' progress to ward implementing pharmaceutical care. *Journal of American Pharmacy, NS42* 29-38.

Centers for Disease Control and Prevention. (1993). Physician and other health-care professional counseling of smokers to quit. United States, 1991. *MMWR, 42*, 853-7.

Centers for Disease Control. (1998). *Chronic diseases and their risk factors: The nation's leading causes of death.* National Center for Chronic Disease Prevention and Health Promotion. Available: http://www.cdc.gov/nccdphp

Conlan, M. F. (1995). What pharmacists are saying about the hot issues. *Drug Top, 139*, 48-50.

Drug Interactions and Updates Quarterly (1995). Applied Therapeutics Inc. Lea & Febiger.

Grapes, Z. T., Smith, M. C., & Sharpe, T. R. (1985). Mississippi pharmacists and tobacco: Why they might stop selling cigarettes. *Mississippi Pharmaceutical, 11*, 8-9.

Maguire, T. (1990). Is the community pharmacist a health educator? *Pharmaceutical Journal, 245*, 556-559.

Massachusetts Pharmaceutical Association. (1995) Massachusetts Pharmaceutical Association releases results of tobacco free pharmacy survey. *Massachusetts Pharmaceutical Journal, 7*, 7-9.

O'Loughlin, J., Masson, P., Dery, V., & Fagnan, D. (1999). The role of community pharmacists in health education and disease prevention: A survey of their interests and needs in relation to cardiovascular disease. *Prevention Medicine, 28*, 324-331.

Project ASSIST. (1998). *Reducing Tobacco for a Healthier Future.* [Brochure]. Indianapolis, IN: Author

Scott, D. M., & Wessels, M. J. (1997). Impact of OBRA >90 on pharmacists' patient counseling practices. *Journal of American Pharmaceutical Association, NS37*, 401-406.

Simonsen, L. L. P. (1992). Winning RPhs tell PT their views on opinion poll. *Pharmaceutical Times, 58*, 68-70.

Thompson, C. A. (1994). Screening the smoking issue. *American Journal of Hospital Pharmacy, 51*, 1313.

U.S. Department of Health and Human Services. *Healthy People 2000* U.S. Government Printing Office, 1990. DHHS Publication No.(PHS)91-50212.

Weber, M. P., Reed, M. T., & Kroner, S. E. (1989). Health promotion and disease prevention: The pharmacist's role. *American Pharmaceutical, NS29*, 37-39. Webster's (1994) *Webster's Encyclopedic Unabridged Dictionary of the English Language.* Gramercy Books, NY.

Understanding Childhood Obesity

Shannon Lynn Tynes

This literature review addresses the substantial increase in children becoming overweight or obese in today's society. Obesity is now the most prevalent nutritional disease of children and adolescents in the U.S. (Dietz, 1998c, p. 93). Research suggests the rise of childhood obesity is linked to poor eating habits, inactivity, and emotional stress. In addition, genetics and the environment are key determinants of a child becoming overweight or obese. These factors affect the social, physical, and mental health of children. The most serious health threat occurs when obese children become obese adults. Recommendations for prevention include (1) use of behavior modification strategies such as problem solving, goal setting, and self-monitoring; (2) involving parents in the treatment approaches, such as increasing parents' exercise levels; (3) involving schools and community resources in a collaborative approach to prevention and control of childhood obesity.

Introduction

Obesity is now the most prevalent nutritional disease of children and adolescents in the U.S. (Dietz, 1998c, p 93). The number of overweight and obese children doubled in the past three decades (National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP], 1997). According to the American Dietetic Association, one in four American children is overweight, and 25%-30% of American children are obese (Moran, 1999). Though childhood obesity is linked to a number of chronic diseases, obesity remains under diagnosed and under treated (Moran, 1999). Without appropriate intervention, childhood obesity can persist into adulthood causing potentially adverse consequences.

Overweight and obesity are related by distinct terms. Overweight children weigh more than the ideal weight for their age and height. Obesity is conventionally defined as 20% or more above the appropriate weight for a related height (Rosen & Weinstein, 1999, p. 116). Numerous instruments can be used to assess a child for being overweight or obese. These instruments include anthropometric measures, body mass index, body composition, or skin fold calipers. Rather than focusing on diagnostic instruments, health professionals should pursue strategies and resources to prevent childhood obesity. Effective intervention involves parents, schools, and community leaders to educate and reinforce positive health behaviors. This article discusses the problem of childhood obesity, causes of childhood obesity, effects of childhood obesity, and ways parents, schools, and communities can help prevent childhood obesity.

The problem of childhood obesity

Three hundred thousand U.S. adults die each year due to poor diet and inactivity (NCCDPHP, 1997). A poor diet is associated with the three leading causes of death in adults: coronary heart disease, cancer, and stroke (Guillaume, 1999). The physical, social, and psychological consequences of adult obesity are linked directly to a history of childhood obesity (Robinson, 1998). Overweight or obese children face a higher probability of becoming obese adolescents and obese adults. Not only can childhood obesity lead to obesity in adults, but more severe problems can occur as well. Obese children are at risk for hypertension, Type II diabetes mellitus, coronary heart disease, orthopedic problems, sleeping difficulties, and depression. In addition, obesé children often are teased and shunned because of their weight, causing them to develop a lower self-esteem and a poor body image. The Center for Nutrition Policy and Promotion supports a research agenda organized to identify specific behaviors related to obesity (Dietz, 1998c). Though researchers do not yet understand specific behaviors of obesity that should be targeted for prevention, they do know the general areas which need to be addressed.

The causes of childhood obesity

One current hypothesis suggests obesity results from interaction of the environment and a genetic predisposition to accumulate excess adipose tissue (Atkinson, 1999). This view identifies two general indicators of obesity: the individual's DNA make-up (genes), and the environment in which a person lives. Genetic influences remain uncontrollable and unchangeable, at least for now, but the environment includes multiple facets that can be changed and controlled to a certain extent. Goran (1998) noted that Genetics permits a person to become obese, but environment determines if a person becomes obese(p.27).

Genetics

Obesity tends to occur in families, yet obesity is not necessarily inherited. Susceptibility to becoming obese depends on

one's surroundings and circumstances (Mela & Rogers, 1998). In about 30% of childhood obesity cases, both parents of obese children are obese. However, about 25%-30% of obese children come from families with normal weight parents (Moran, 1999). The presence of obesity in at least one parent significantly increases the risk that an obese child will become an obese adult (Moran, 1999). The prevalence of overweight is highest among racial/ethnic groups and lower socioeconomic classes, including non-Hispanic Blacks and Mexican Americans (Picciano, McBean, & Stallings, 1999).

Studies have shown specific genetic contributions to a multitude of physiological and behavioral responses which might prompt overeating and obesity under certain circumstances (Dietz, 1998c). More than 100 genes have been identified as contributors to the etiology of obesity, but no single gene is responsible for the obesity that affects the population (Atkinson, 1999). However, single-gene disorders such as Prader-Will Syndrome can result in obesity (Humphrey, 1994). With the prevalence of obesity currently rising, changes in permissive environmental conditions become much more appropriate than the search for and treatment of individual defects (Mela & Rogers, 1998). Within the environment, obesity is associated with familial factors that include ethnic food preferences, eating patterns, dietary composition differences, activity levels, and stress.

Eating habits

People typically gain weight when energy intake exceeds the energy output (Rosen & Weinstein, 1999). Several studies indicate that, on average, obese children do not consume significantly more calories than their thinner peers (Mela & Rogers, 1998). Why do these children become obese if they are not over consuming food? Energy output compromises the basal metabolic rate, the thermal effect of food, and activity (Moran, 1999). Though too few studies have been conducted to give a complete explanation of food intake relative to obesity, numerous correlations to obesity exist regarding fast foods and foods high in fat and sugar (Mela & Rogers, 1998).

According to the National Dairy Council (1996), because more mothers are working outside the home, children and adolescents today assume increased responsibility for their food selection and preparation. The increased availability and aggressive advertising of inexpensive, high calorie, high fat foods entice children away from healthful food choices. A primary cause of obesity involves the dietary habits of both the family and the child. Many children do not have a regular mealtime, and children often eat fast food due to lack of time for parents to prepare food.

According to Dietz (1998a), the decline in the nuclear family has some association to the change of eating patterns in the United States. In the 1930's, food was made from scratch in the home, giving parents control over what their children were consuming. In the 1950's, frozen food became available allowing women to spend less time in the kitchen. In the 1970's, microwavable foods prompted two major changes in the food consumption of children. First, food intake and preparation were no longer solely at the discretion of the parent. Second, children could select and prepare their own food. In the 1990's, takeout and fast foods dominate the diets of most individuals. Today, takeout food accounts for more than 30% of a family's food expenditures on a daily, weekly, or yearly basis. This practice occurs across all socioeconomic classes (Dietz, 1998a).

Children consume most of their food from the top sections (dairy, meats, and sweets) of the food guide pyramid compared to the bottom sections (fruits, vegetables, and grains). Excessive consumption from the top of the pyramid causes children to consume more than 30% of their calories from fat (Rosen & Weinstein, 1999). This eating trend has been linked to diseases such as heart disease and colon cancer. Fifty-one percent of children and adolescents eat less than one serving of fruit a day, and 29% eat less than one serving a day of vegetables that are not fried (NCCDPHP, 1997). In *The shelter of each other: Rebuilding our families*, Dr. Pipher alluded to the decline in nutrition knowledge of children in the United States:

> Because of divorce, many children live in two places. Children don't get much exercise and many never eat meals. One teacher said that children don't know the common vegetables, such as carrots, celery, and cucumbers. They eat only fast foods and snacks (Pipher, 1997, p.75).

Inactivity

National studies indicate that many youth live sedentary lifestyles (National Dairy Council, 1996). They watch television, play video games, or use a computer (National Institute of Diabetes and Digestive and Kidney Disease [NIDDKD], 1997). Children emulate their sedentary parents, teachers, and community leaders. Sedentary lifestyles contribute to adverse effects later in adolescence and adulthood. Fewer students participate in regular physical education classes, playground activities, and after-school sport programs (American Medical Association, 1995). Children are not following any particular plan to develop the fitness skills necessary for a healthy lifestyle.

Another concern involves the availability of leisure transportation and its contribution to childhood obesity. This issue poses a question to the community about safe neighborhoods and school zones. Unfortunately, some communities are not as safe as they were years ago, prompting some parents to forbid their children from walking and biking to school and playing in the neighborhoods or community parks (Robinson, 1998).

Stress

Emotional stress also may contribute to obesity. Depression is associated with weight gain, and about 10-20% of depressed patients gain weight (Atkinson, 1999). A common emotional difficulty among the obese involves low self-esteem, often associated with a negative body image (Bradon, 1989). Society's preoccupation with viewing a thin figure as beautiful may con-

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tribute to the poor body image of the obese. As American culture increasingly considers thinness as the ideal, obese children are seen in an increasingly negative light (Lukert, 1982). Ideal thinness and media images could be linked to obese children developing eating disorders and low self-esteem (Schmidt, 1998).

The effects of childhood obesity

Growth

Obesity affects the growth and development of a child. Obese children tend to be taller and begin puberty earlier than their peers (Schreiner & Phillips, 1998). Unfortunately, adults often assume obese children are older than their biological age. This assumption causes obese children to feel less intellectual, and they may become withdrawn in school or the community (Dietz, 1998b).

Physical health

Obesity also compromises a child's physical health. Obese children often experience signs of arteriosclerosis, high blood pressure, and orthopedic problems. These potentially mild health risks in childhood could escalate in adolescence and adulthood. Another dilemma regarding physical health involves the inability of obese children to perform physical activities or the embarrassment of performing the activities because of their weight (NIDDKD, 1997). Children need to learn the skills and knowledge to adopt a healthy physical lifestyle.

Mental health

Poor mental health is another effect of childhood obesity. Depression plays a reciprocal role. Typically, depressed individuals tend to gain weight, but the converse occurs for obese people. They become depressed as a result of obesity (Wolman, 1982). Researchers offer different interpretations of why people over eat and why they use food as comfort. Food intake may serve as a substitute for unattained love or attention. The parent-child relationship plays a significant role in children's eating habits and obesity (Dietz, 1998c). Again, all dimensions of parenthood have an underlying meaning and interpretation. Children could develop a sense of failure if parents do not respond to them and therefore use food as a comfort. Parents also use food as a reward. Often parents' patience is challenged by the demands of rearing children, so they use food to quiet them or they use sweets to get them to eat vegetables. This practice could be a contributor of childhood obesity (Picciano, 1999).

Social Health

Overweight or obese children show a decline in social health. Unfortunately, in our society people have been socialized to show disapproval of obesity. Overweight and obese children have been stigmatized as lazy, stupid, and sloppy (Dietz, 1998b). Studies show that children express negative attitudes toward their obese peers as early as kindergarten, and they would prefer a playmate confined to a wheelchair or one disabled by a major physical handicap to one who is obese (Moran, 1999). If avoidance from peers begins as early as kindergarten, what will happen to the overweight or obese children? As a consequence, these children often suffer emotionally and are lonely throughout their lives. This situation poses a threat to their health and well being.

Prevention measures for childhood obesity

Jeffery (1998) offered two generalizations about preventing obesity. First, based on several studies that tested variations on parental involvement, actively involving parents in treatment can prove important and beneficial. Second, programs incorporating behavioral methods (e.g., self-monitoring, goal setting, problem solving, and contingency management) work more effectively than using only an educational approach. Involvement of parents and an emphasis on increasing activity levels, in addition to nutritional and behavioral measures, seem crucial in obtaining significant short-term and long-term weight loss (Schmidt, 1998). If parents, schools, and communities work together to implement parent-based and goal-oriented programs as well as education, a tremendous impact accrues on the social, mental and physical health of children.

Parents

Parents can influence the eating habits and activity levels of their child by providing a positive role model. Overweight or obese children need support, acceptance, and encouragement from their parents (NIDDKD, 1997). If children are overweight or obese, parents need to reassure them that they will love and care for them regardless of their weight (NIDDKD, 1997). Parents also should talk to their children about weight and any concerns they are experiencing.

In addition, parents should approach exercising as fun for the entire family rather than as a chore for the overweight child. If children associate exercise with fun and entertainment, they will feel more inclined to make exercise a part of their daily routine. A key to increasing physical activity involves decreasing the amount of sedentary activities such as watching television, playing video games, and working on a computer. Parents need to teach children healthy eating practices so they will approach eating and exercise with a positive attitude. Parents of obese children should learn about prevention programs and treatments available so they can help make a difference.

Schools and Communities

Schools and communities can work collaboratively to help educate parents and children about the importance of healthy

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eating, physical activity, and ways to deal with stress. Schools can design interdisciplinary programs for children to learn about healthy eating and physical activity. They also can incorporate nutritional and healthy behavior programs that reach a large number of students.

The components of a coordinated school health program (Allensworth & Koble, 1987; Marx, Wesley, & Northrop, 1998) offer numerous opportunities for schools to design interdisciplinary programs for children to learn about optimal health. The coordinated school health program can use multiple strategies to help children employ realistic health strategies for weight control. It is important that each of the eight components complement and reinforce the strategies used. School health instruction can help students understand and develop realistic views of weight and self-esteem. School Health Services, particularly involving the school nurse, can provide reinforcement and monitoring of the clinical aspects of obesity. School Physical Education programs can promote lifelong fitness and tailor specific activity programs for the obese child. School counseling, psychological and social services can provide individual and group social support activities involving children and parents. School Nutrition Services can offer nutritious, low-calorie meals as an option in school food services. The Healthful School Environment can encourage a healthful emotional climate, as well as a healthful physical environment, for the school. School-Site Health Promotion Programs for staff can assist school employees in maintaining personal fitness and in modeling a healthy and active lifestyle for students. Family and Community Involvement in schools can offer a variety of support. According to Parcel, Green, and Bettes (1988), the community can support the schools in addressing childhood obesity by providing reinforcing interventions to those activities initiated by the schools.

Conclusion

As a society, the U.S. faces an epidemic of childhood obesity. While further research still must be conducted to fully understand childhood obesity and to develop measures for prevention and intervention, education of the public about the causes and effects of the disorder can be helpful. Working collaboratively, parents, schools, and the community can help these children achieve a healthier life.

References

Allensworth, D. D., & Kolbe, L. J. (1987). The comprehensive school health program: Exploring an expanded concept. *Journal of School Health, 57*(10), 409-412.

American Medical Association. (1995) *Healthy Youth 2000, A mid-decade review*. Chicago, IL: Department of Adolescent Health.

Atkinson, R. L. (1999). Etiologies of obesity. In D. J. Goldstein (Ed.), *The management of eating disorders and obesity* (pp. 83-91). Totowa: Humana Press.

Bradon, J. (1989). Characteristics of Obesity. In A. F. Rotatori, & R. A. Fox (Eds.), *Obesity in Children and Youth* (pp. 53-66). Springfield: Charles C Thomas.

Dietz, W. H. (1998a). Childhood obesity: The contribution of diet and inactivity. In Center for Nutrition Policy and Promotion *Childhood obesity: Causes & prevention, symposium proceedings* (pp. 15-22). Washington D.C.: USDA.

Dietz, W. H. (1998b). Health consequences of obesity in youth: Childhood predictors of adult disease. *American Academy of Pediatrics, 101*, 518-525.

Dietz, W. H. (1998c). Prevalence of obesity in children. In G.A. Bray, C. Bouchard, & W. P. James (Eds.), *Hand book of obesity* (pp. 93-102). New York: Marcel Deckker, Inc.

Goran, M. (1998). Obesity and health risk in children. In Center for Nutrition Policy and Promotion. *Childhood obesity: Causes & prevention, symposium proceedings* (pp. 23-32). Washington D.C.: USDA.

Guillaume, M. (1999). Defining obesity in childhood. *American Journal of Clinical Nutrition, 70*(1), 126s-130s.

Humphrey, N. (1994). Researchers close in on genetic cause of childhood obesity syndrome. *VUMC Reporter, 17*:4 (24), 1-2.

Jeffery, W. H. (1998). Prevention in obesity. In G. A. Bray, C. Bouchard, & W. P. James (Eds.), *Handbook of obesity* (pp. 819-830). New York: Marcel Deckker, Inc.

Lukert, B. (1982). Biology of obesity. In B.B. Wolman (Ed.), *Psychological aspects of obesity* (pp. 1-14). New York: Van Nostrand Reinhold Company.

Marx, E., Wooley, S. F., & Northrop, D. (1998). *Health is academic: A guide to Coordinated School Health Programs*. New York, NY: Teachers college Press, Columbia University.

Mela, D. J., & Rogers, P. J. (1998). *Food, eating, and obesity*. London: Chapman & Hall.

Moran, R. (1999). Evaluation and treatment of childhood obesity. *American Family Physician, 59*(4), 861-868.

National Center for Disease Prevention and Health Promotion. (1997). CDC's Guidelines for school and health programs, promoting lifelong healthy eating [Online]. Available: http://www.cdc.gov/nccdphp/dash/nutraag.htm

National Dairy Council. (1996). Diet and exercise: What kids need today. *Dairy Council Digest, 67*(6), 32-36.

National Institute of Diabetes and Digestive and Kidney Disease. (1997). *Helping Your Overweight Child* (#97-4096) National Institutes of Health.

Parcel, G. S., Green, L. W., & Bettes, B. A. (1988). School-Based programs to prevent or reduce obesity. In N. A. Krasnegor, G. D. Grave, & N. Kretchmer (Eds.), *Childhood obesity: A biobehavioral perspective* (pp.143-154). New Jersey: The Telford Press, Caldwell.

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Consumer Health Information and the New Technologies: Implications for Health Education

Marsha H. White

Abstract

Health educators must learn to better satisfy the consumer's increasingly sophisticated medical information needs. Consumers today seek health information from a variety of sources, including friends and family, health care providers and public health agencies, schools and libraries, support groups, the media, and the Internet. This paper examines the democratization of medical information as a result of widespread computer access to electronic medical databases and the Internet. Using articles gleaned from the health science literature, as well as more popular sources and web sites, this paper reviews the changes in medical information dissemination as a result of technological advances. Health educators can respond to the consumer information revolution by acting as gatekeepers and facilitators, directing consumers to relevant and meaningful sources of health information.

Introduction

Health educators must learn to satisfy the increasingly sophisticated medical information needs of consumers. Many consumers are educating themselves by gathering health information from family, friends, the media, electronic databases and the Internet. Health educators can act as gatekeepers to direct consumers to sources of meaningful health information, assist consumers in evaluating such information, and to extract and explain consumer needs. In this role as consumer advocate, health educators can teach consumers how to evaluate the quality, credibility, and reliability of medical information disseminated using new technologies.

With the advent of popular electronic access to medical databases and the Internet, the average person can access medical information more easily than in the past. Technological advancements, especially the Internet, allow unfettered access to information on all topics. Recent estimates place the number of Internet users in North America at more than 80 million (Nielsen Media Research, 1998). Mailgroups, newsgroups, bulletin boards, and the World Wide Web lend themselves to a widening social and intellectual community where participants freely share information. Medical information has become democratized, even for those too poor to own a personal computer. People without computers in their homes can access the Internet on computers available in schools and public libraries. In 1998, almost 75% of public libraries offered Internet access to the public. By the end of the year 2000, that number should reach close to 100% of all public libraries (American Library Association, 1998).

Consumer expectations are higher than ever regarding medical care and medical information. Consumers count on health care professionals to keep up with the latest developments in the medical field, especially when the consumer is also doing so. With the advent of managed care, brief hospital stays, escalating medical costs, Medicare cutbacks, decreased insurance coverage, and hospital staffing shortages, consumers are becoming their own advocates and case managers (Bruegel, 1998; Kantz et al., 1998). Many consumers are taking responsibility for learning as much as possible about their disorders and about how to treat them. They bring lists of questions to health care professionals and demand answers, expecting the most for their hard-earned dollar. Health professionals, meanwhile, find they have less time to spend with individual patients.

Not satisfied with traditional allopathic remedies, increasingly diverse segments of the American population are looking for alternative and complementary therapies. The number of people in the United States who used alternative therapies increased from 36% in 1990 to 46% in 1997 (Eisenberg et al., 1998). In a recent survey of Florida residents, 62% had used one or more alternative therapies (Burg, Hatch, & Neims, 1998). Homeopathic and herbal treatments are moving from the health food store and mail order outlet to the grocery store and pharmacy. An Office of Alternative Medicine has been established at the federal level as part of the National Institutes of Health. Mainstream peer-reviewed journals are publishing studies about alternative therapeutic modalities (Bensoussan et al., 1998; Oken, Storzbach, & Kaye, 1998; Wilt et al., 1998). Alternative medicine appeals to the consumer's sense of participation, self-empowerment, authenticity, and self-identity (Kaptchuk & Eisenberg, 1998).

Adults are eager to learn about their health and the diseases that affect themselves and their families. Evidence of this demand is seen in the number of books, popular magazine articles, and newspaper press releases on health subjects. The number of newsletters devoted to consumer health issues is proliferating. Individuals as well as libraries sub-

scribe to health newsletters such as *Harvard Health Letter*, *Health Facts*, *Mayo Clinic Health Letter*, and *University of California at Berkeley Wellness Letter*. The National Library of Medicine has begun to include citations from these newsletters in its Medline database.

Marketing surveys consistently find that consumers display a strong interest in health matters and look to technology to find innovative and creative avenues to answer their medical questions (Deering & Harris, 1996). According to a recent Harris poll, 68% of people who used the Internet did so to find medical information. Ninety percent were successful in locating web sites that met their needs (Poll, 1999). In his book *Health Online*, Ferguson (1996) explains the advantages of online venues for building self-help communities.

Where Do Consumers Find Medical Information?

The first place consumers go for health information is to other consumers (Ferguson, 1996). Friends and family, especially if they have personal experience with the particular medical problem, can be especially supportive sources. However, unless a family member is also a health care professional, information may be primarily anecdotal, inaccurate, or piecemeal.

Other traditional sources for medical information include public and cable television programs such as Dr. Andrew Weil's >8 weeks to optimum health workshops (Weil, 1995, 1997). Consumers also call or write government or nonprofit health agencies for information and advice (Calvano, 1991).

Support groups, face-to-face or online, provide another venue for information. A trained facilitator usually leads the group, thus ensuring the information is filtered for facts and discrepancies. Online support groups often use trained facilitators as well. Some, especially self-help forums on commercial providers like America Online and CompuServe and the moderated mailgroups, assign at least one person to monitor contributions. Newsgroups, bulletin boards, and unmoderated mailgroups do not include monitoring. However, health care professionals are often members of such groups, frequently contributing comments, correcting errors, offering explanations, and answering questions (Ferguson, 1998).

Consumers also go to libraries for books, magazines, and videos on health matters. Research and public libraries often offer medical databases such as Medline for public use, and consumers use them to find research and reports on medical treatments, clinical trials, and other health-related topics (Deering & Harris, 1996; LaRocco, 1994; Martin & Lanier, 1996).

With the advent and popularization of the Internet, especially the World Wide Web, consumers are turning to electronic sources for health information (Lindberg & Humphreys, 1998; Pesut, 1998). Medical information, formerly the exclusive province of physicians, is now available to all. Creation of the HealthFinder gateway and free access to the Medline database in the form of PubMed eliminated major barriers to citizen access to health information. Modlin (1998) estimates that users conduct about 10 million Medline searches each month. Librarians and researchers perform 36% of these searches, while physicians conduct another third. Surprisingly, the public performs approximately 30% of all searches, and this figure should increase as word spreads about the availability of the database.

Now, the person with HIV infection can seek information on the latest drugs and clinical trials, while the Desert Storm veteran can research the latest developments and controversies surrounding Gulf War Syndrome. Newly diagnosed patients, whether suffering from colon cancer or depression, can explore the diagnosis, treatment, and rehabilitation of their disorders in the international medical literature.

Quality Control on the Internet

The Internet has transformed the home computer into a virtual medical library with resources formerly found only in the largest universities. However, much of what is found on the Internet is not accurate. Publishing on the Internet is so easy and inexpensive that quality filters are difficult to establish. Numerous studies show that medical web sites often give inaccurate or misleading information (Coelho, 1998; Jadad & Gagliardi, 1998; Silberg, Lundberg, & Musacchio, 1997). Background information and credentials about web site creators is frequently absent. In some cases, misinformation has resulted in serious consequences, even death (Weisbord, Soule, & Kimmel, 1997).

While attempts have been made to establish criteria for evaluating medical web sites (Eysenbach & Diepgen, 1998; Rippen, 1997), no broad consensus exists regarding regulation. Many people view efforts at regulation as an infringement of free speech, and such attempts are strongly resisted (Coiera, 1998). Therefore, consumers must learn the attributes of a trustworthy site and the warning signs of poor quality and erroneous information. Pealer and Dorman (1997) suggest an uncomplicated evaluation form for health educators to use when considering the attributes of a particular health-related site. This tool could be adapted for use in adult classroom settings. Because it is impossible to catalogue and review all health information on the Web, consumers must learn to identify components of a good site and to recognize warning signs of a poor one. Kotecki and Chamness (1999) devised a validated tool for consumers to use when assessing the quality of health-related web pages.

Consumers lack a suitable frame of reference for assessing the reliability and suitability of health information found on the Internet (S. M. Dorman, personal communication, February 18, 1999). Most other media have their own particular yet familiar means of discerning the reputation and background of an author, publisher, or television or radio station.

On the Internet, however, it is difficult to identify and verify the credentials of mailgroup contributors or web site creators. Establishing such a frame of reference can be an integral aspect of the health educator's role.

Implications for Health Educators

Consumers are better equipped to explore health information than ever before. They can learn about new diagnoses, treatments, and medications quickly and easily from a variety of sources. By the time consumers attend health education or patient education classes, they are armed with the latest information, perhaps bringing with them copies of press releases or scholarly research articles about new drugs or therapies.

Health educators can respond to the consumer information revolution by acting as facilitators and helping consumers locate meaningful sources of medical information. Becoming informed and keeping current in a world exploding with information is key. Published works, video productions, television programs, computer databases, Internet tools, and other avenues of health communication all represent essential and viable components of the consumer health information revolution. Health educators must learn what consumers are reading, viewing, and hearing, regardless of format. They must keep abreast of the professional and lay literature, participate in community organizations, and listen to consumer concerns and needs. To accomplish this, health educators need to actively engage with consumers in schools, at work, and in the community.

The role of facilitator relates directly to several important responsibilities of Certified Health Education Specialists (CHES) (National Commission for Health Education Credentialing, 1996). Under CHES Responsibility VI, Competencies A, C, and D, health educators must use computer databases effectively, respond to requests for information using a variety of resources, and evaluate and choose appropriate educational materials. In addition, CHES Responsibility VII, Competencies C and D, require health educators to use a variety of methods and techniques in communicating health information to the public while fostering beneficial relationships between consumers and health care professionals.

Success in achieving this facilitator role will involve extensive reading, networking with other professionals, and becoming familiar with a variety of electronic sources and databases. These databases may include Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychLit, HealthStar, International Pharmaceutical Abstracts, and InfoTrak's Health Reference Center.

Colleges and universities with health science education programs must introduce to students, early in the curriculum, the concept of consumer demand for health information. Training in the various methods of supplying information, encompassing the latest technological venues, is essential. Ideally, such a curriculum would include in-depth instruction on searching various health-related databases, both free and proprietary. Practical methods for finding health information on the World Wide Web using medical search engines and directories, as well as how to evaluate retrieval, also should be addressed.

In addition, innovative forms of online communication, including the use of mailgroups and newsgroups for health behavior support can be explored. Encouraging students to join online support groups as a class assignment can be particularly advantageous. Joining such groups would provide students with the opportunity to understand problems faced by those trying to change a health behavior or accommodate to a disorder.

For the practicing health educator, continuing education programs and workshops on consumer health trends and resources, search strategies for Internet technology, and quality evaluation of Internet sites provide a practical means of staying current on a contemporary issue. Mastering these strategies and techniques will help health educators in all health promotion arenas, including schools, public health and voluntary organizations, hospitals, and worksites.

The increasing appeal of alternative and complementary therapies means that health educators need to keep abreast of trends in unconventional treatments. Helping adults find reliable information on unconventional remedies and discerning its validity should be a major component of the health educator's role.

Printed guides, both books and journals, can be valuable for keeping up with the most recent health web sites and support capabilities. *Medicine on the Net*, a monthly journal, is a reliable source of reviews, but many professional journals in the health field now cover Internet resources. Readers also can find a number of good books on various topical medical web sites. The *Consumer Health Information Source Book* by Rees (1998), the gold standard for material in this arena, includes bibliographies on medical consumerism, clearinghouses, magazines, newsletters, pamphlets, electronic databases, and web sites. For resources specific to cancer, *Cancer Resources on the Internet* (Wood & Delozier, 1997) is a good place to start. Listings of helpful web sites (Table 1) and books (Table 2) are available.

Networking can take place formally and informally at conferences, workshops, and annual meetings. Many national and local health education groups sponsor special programs focusing on innovative ways to meet consumer and patient health needs. Mailgroups (listservs) provide a vehicle for keeping one step ahead of consumer interests. In addition to sharing news about web sites, members often contribute innovative methods and teaching strategies for consumer and patient programs. HEDIR (Health Educator's List), NIFL (Literacy in Health Education), HLTHEDUC (Healthcare Education List), and MEDLIB (Medical Library List) are several examples.

Health educators should incorporate Internet resources as a

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Table 1: Web Resources for Consumer Health Information
Agency for Health Care Policy & Research: Consumer Health http://www.ahcpr.gov/consumer
CANCERLIT http://www.cnetdb.nci.nih.gov/cancerlit
CenterWatch Clinical Trials Listing Service http://www.centerwatch.com
Core Bibliography of Consumer Health Reference Books http://library.uchc.edu/departm/hnet/corelist.html
Food & Drug Administration http://www.fda.gov
Health A to Z http://www.healthatoz.com
Health World Online http://www.healthy.net
HealthFinder http://www.healthfinder.gov
Health Web Resource List http://www.uic.edu/depts/lib/health/hw/consumer/internet.html
Mayo Clinic Health Oasis http://www.mayohealth.org
Medicine Net http://www.medicinenet.com
MedlinePlus http://medlineplus.nlm.nih.gov/medlineplus
NetMed's Health Care Guide to the Internet http://netmed.com/intro.html
NOAH: New York Online Access to Health http://www.noah.cuny.edu
Office of Alternative Medicine. National Institutes of Health http://altmed.od.nih.gov
OncoLink http://oncolink.upenn.edu
PubMed (Medline) http://www.ncbi.nlm.nih.gov/PubMed

Table 2: Print Resources for Consumer Health Information
Maxwell, B. (1998). How to find health information on the Internet. Washington, D. C.: Congressional Quarterly.
Murray, S. (1995). Developing a consumer health information service: A practical guide. Toronto, Ontario, Canada: Metropolitan Toronto Reference Library.
Rees, A. M., Editor (1998). Consumer health information source book. 5th edition. Phoenix, AZ: Oryx Press.
Scott, R., Gibbs, M. A., Sullivan-Fowler, M., & Rowe, N. (1997). Mosby's medical surfari: A guide to exploring the Internet and discovering the top health care resources. St. Louis, MO: Mosby-Yearbook.
Wolff, M. (1997). Net doctor: Your guide to health & medical advice on the Internet & online services. NY: Wolff New Media.

regular and essential part of curriculum planning and design. This objective can be accomplished by preparing separately planned segments of educational programs or by allowing for spontaneous discussions integrated into presentations of information on health topics. For example, a class on heart disease prevention might offer the consumer several reliable web sites on heart disease. A patient education session on breast cancer could suggest online support groups for breast cancer survivors. Employee wellness programs can incorporate lessons on verifying and researching news items about the latest diet drugs and exercise strategies. It is paramount that health educators teach consumers how to evaluate health-related materials for accuracy, timeliness, authority, and bias, especially for information found on sites on the World Wide Web.

Summary

As consumers continue to participate actively in the health care process, their demand for medical information will increase. Health educators can play an instrumental role in guiding consumers through the vast maze of available health information. Becoming familiar with the most authoritative electronic resources should be a primary task of health educators. The ever-changing nature of these resources and the emerging new technologies presents a constant but crucial challenge.

References

American Library Association. (1998). *The 1998 national survey of U. S. public library outlet Internet connectivity* [On-line]. Available: http://www.ala.org/oitp/research/survey98.html Accessed January 25, 1999.

Bensoussan, A., Talley, N. J., Hing, M., Menzies, R., Guo, A. & Ngu, M. (1998). Treatment of irritable bowel syndrome with Chinese herbal medicine: A randomized clinical trial. *Journal of the American Medical Association, 280,* 1585-1589.

Bruegel, R. B. (1998). Patient empowerment- a trend that matters. *Journal of theAmerican Health Information Management Association, 69,* 30-33.

Burg, M. A., Hatch, R. L., & Neims, A. H. (1998). Lifetime use of alternative therapy: A study of Florida residents. *Southern Medical Journal, 91,* 1126-1131.

Calvano, M. (1991). Consumer health information and the not-for-profit health agency. *Bulletin of the Medical Library Association, 29,* 189-194.

Coelho, P. C. (1998). The Internet: Increasing information, decreasing certainty. *Journal of the American Medical Association, 280,* 1454a.

Coiera, E. (1998). Information epidemics, economics, and immunity on the Internet. *BMJ, 317,* 1469-1470.

Deering, M. J., & Harris, J. (1996). Consumer health information demand and delivery: Implications for libraries. *Bulletin of the Medical Library Association, 84,* 209-216.

Eisenberg, D. M., Davis, R. B., Ettner, S. L., Appel, S., Wilkey, S., Van Rompay, M.,& Kessler, R. C. (1998). Trends in alternative medicine use in the U. S., 1990-1997: Results of a follow-up national survey. *Journal of the American Medical Association, 280,* 1569-1575.

Eysenbach, G., & Diepgen, T. L. (1998). Towards quality management of medical information on the Internet: evaluation, labeling, and filtering of information. *BMJ, 317,* 1496-1500.

Ferguson, T. (1996). *Health Online.* Reading, MA: Addison-Wesley.

Jadad, A. R., & Gagliardi, A. (1998). Rating health information on the Internet: Navigating to knowledge or to Babel? *Journal of the American Medical Association, 279,* 611-614.

Kantz, B., Wandel, J., Fladger, A., Folcarelli, P., Burger, S., & Clifford, J. C. (1998). Developing patient & family education services: Innovations for the changing healthcare environment. *Journal of Nursing Administration, 28,* 11-18.

Kaptchuk, T. J., & Eisenberg, D. M. (1998). The persuasive appeal of alternative medicine. *Annals of Internal Medicine, 129,* 1061-1065.

Kotecki, J. E., & Chamness, B. E. (1999). A valid tool for evaluating health-related web sites. *Journal of Health Education, 30,* 56-59.

LaRocco, A. (1994). The role of the medical school-based consumer health information service. *Bulletin of the Medical Library Association, 82,* 46-51.

Lindberg, D. A. B., & Humphreys, B. L. (1998). Medicine and health on the Internet. *Journal of the American Medical Association, 280,* 1303-1304.

Martin, E. R., & Lanier, D. (1996). Networking consumer health information: Bringing the patient into the medical information loop. *Bulletin of the Medical Library Association, 84,* 240-6.

Modlin, M. (1998). Medical questions? Medline has answers. *American Libraries, 29* (10), 40-42.

National Commission for Health Education Credentialing. (1996). *A competency-based framework for professional development of Certified Health Education Specialists.* Allentown, PA: National Commission for Health Education Credentialing, Inc.

Nielsen Media Research. (1998). Internet Demographic Study [On-line]. Available: http://ww.nielsenmedia.com/interactive/commercenet/S98. Accessed January 25, 1999.

Oken, B. S., Storzbach, D. M., & Kaye, J. A. (1998). The efficacy of ginkgo biloba on cognitive function in Alzheimer disease. *Archives of Neurology, 55,* 1409-1415.

Pealer, L. N., & Dorman, S. M. (1997). Evaluating health-related web sites. *Journal of Health Education, 67,* 232-235.

Pesut, D. J. (1998). Electronic commerce and Internet-based health care. *Nursing Outlook, 46,* 201. *Poll: Most Net users want health information.* (February 17, 1999) [On-line].Available:http://www.excite.com/computers_and_internet/tech_news/other/?article/news/u/99021/09/tech-internet-poll.inp Accessed February 22, 1999.

Rees, A. M. (1998). *Consumer health information source book.* (5th ed.). Phoenix, AZ: Oryx Press.

Rippen, H. (October 14, 1997). *Working draft white paper: Criteria for assessing the quality of health information on the Internet* [On-line]. Available: http://www.mitretek.org/hiti/showcase/documents/criteria.html Accessed January13, 1999.

Silberg, W. M., Lundberg, G. D., & Musacchio, R. A. (1997). Assessing, controlling,and assuring the quality of medical information on the Internet. *Journal of the American Medical Association, 277,* 1244-1245.

Weil, A. (1997). *Eight weeks to optimum health.* NY: Knopf.

Weil, A. (1995). *Spontaneous healing.* NY: Knopf.

Weisbord, S. D., Soule, J. B., & Kimmel, P. L. (1997). Poison on line B Acute renal failure caused by oil of wormwood purchased through the Internet. *New England Journal of Medicine, 337,* 825-827.

Wilt, T. J., Ishani, A., Stark, G., MacDonald, R., Lau, J., & Mulrow, C. (1998). Saw palmetto extracts for treatment of benign prostatic hyperplasia: a systematic review. *Journal of the American Medical Association, 280,* 1604-1609.

Wood, M. S., & Delozier, E. P. (1997). *Cancer resources on the Internet.* Binghamton,NY: Haworth Press.

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